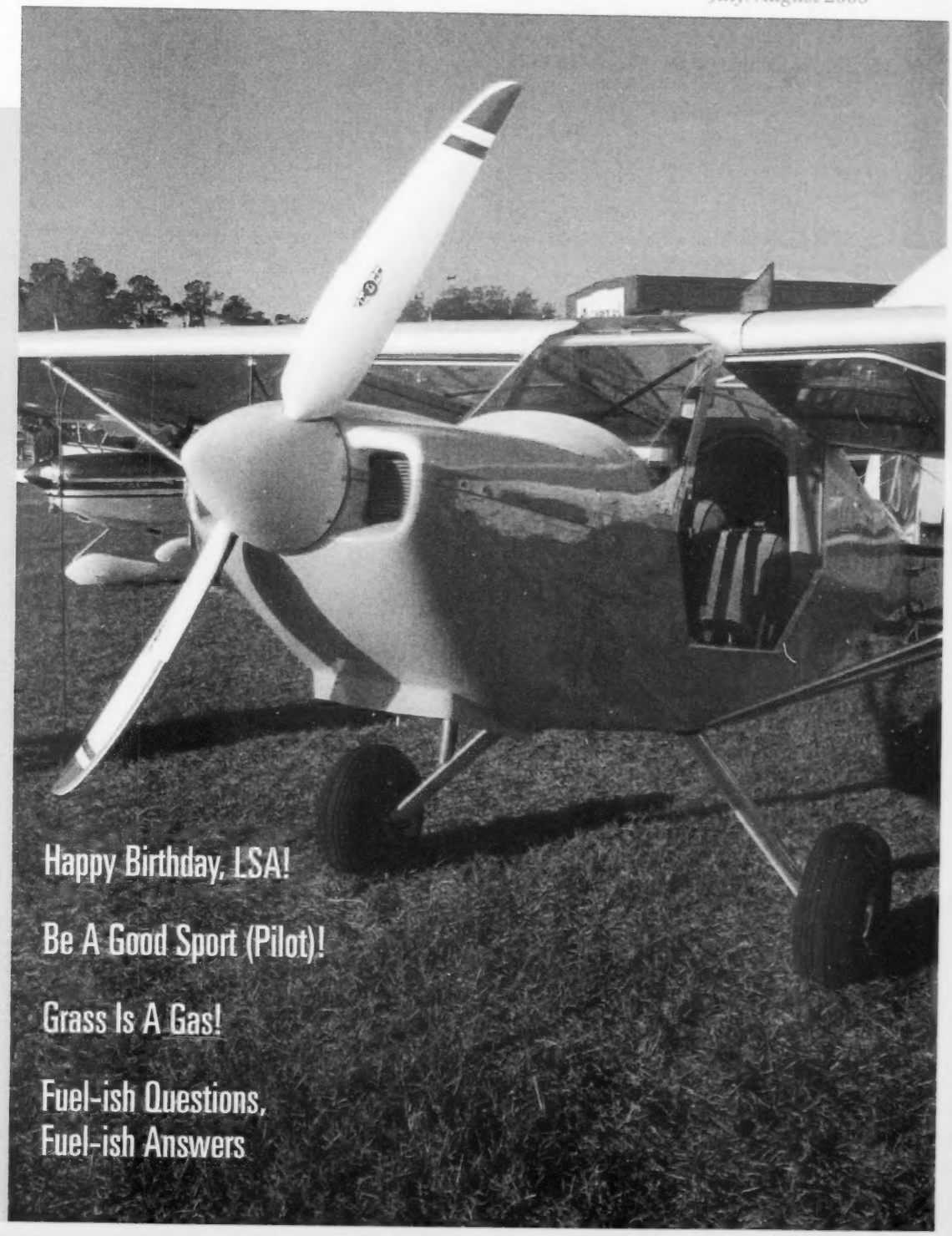
FAA Aviation News

SAFETY FIRST FOR GENERAL AVIATION

July/August 2009

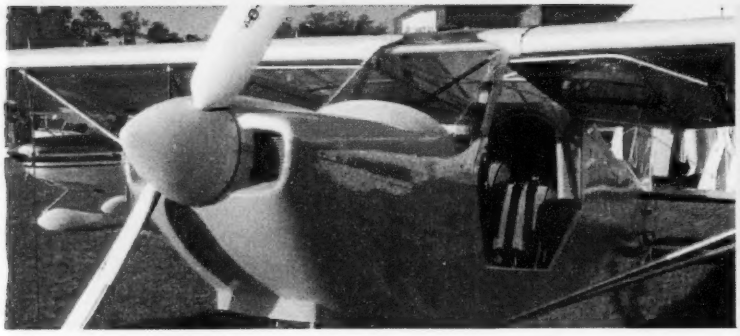


Happy Birthday, LSA!

Be A Good Sport (Pilot)!

Grass Is A Gas!

Fuel-ish Questions, Fuel-ish Answers



In this issue, we highlight the exciting opportunities that light-sport aviation offers to today's pilot, including a look at sport pilot certificate privileges, training tips, and maintenance requirements.
Cover photo by Tom Hoffmann

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Jumpseat

JOHN M. ALLEN
DIRECTOR, FLIGHT STANDARDS SERVICE

Risk and Responsibility

In late July, I'll be heading north to Wisconsin for the annual EAA AirVenture Oshkosh®. With more than a half million visitors, about 2,500 participating aircraft, and, for a few days, the world's busiest air traffic control tower, EAA AirVenture® is one of general aviation's premier events.

Overseeing EAA AirVenture is a responsibility the FAA takes very seriously—issuing waivers for the afternoon air shows, selecting and training air traffic controllers, scheduling seminars at the FAA Safety Center, among other behind-the-scenes planning and coordination.

Responsibility is an important concept in aviation. Let me explain. In the United States, we give GA pilots a lot of freedom. An airline pilot, for example, must go to an alternate airport if certain weather requirements are not met. You, as a GA pilot, can go take a look. Airline pilots must fly with a filed flight plan. You, on the other hand, can take off and fly under visual flight rules (VFR) without contacting air traffic control. And, you can fly on your own schedule, not according to a published timetable.

With those freedoms comes responsibility—responsibility to the people on the ground, to your passengers, and to your family. Yet, it's much more than that—you must be responsible for yourself and aware of the very real risk you are taking each time you fly.

As far as we have come in improving aircraft, developing technology, and improving flight instruction, among others, there remain very real risks each time you set out to defy gravity. The number of fatal GA accidents has come down in recent years, but we still have the unfortunate numbers to remind us that GA flying is not as safe as we would like it to be. Each year, we lose several hundred fellow pilots and passengers in GA accidents in the United States.

All of life presents risks and each of us, to one degree or another, routinely practices risk management. We practice risk management when we look both ways before crossing the street. Some practice it when teaching their teens to drive and require that they drive more hours under adult supervision than called for by the Department of Motor Vehicles. The FAA Safety Team uses risk management when our safety experts examine accident and incident data for a given region and develop targeted safety programs to address specific causes of accidents.

Each time we climb into a cockpit we must approach our role as pilot in command with professionalism and as risk managers. Your safety, your passengers, and the people on the ground depend on you being the best that you can in terms of training, decision making, and attitude. You do not need to be a professional pilot to have a professional attitude.

The number of fatal GA accidents has come down in recent years, but we still have the unfortunate numbers to remind us that GA flying is not as safe as we would like it to be.

Yes, the FAA sets baseline standards and minimum requirements, but the sky is wide open with possibility—as is amply demonstrated each summer in Oshkosh. That is what is so great about gatherings such as EAA AirVenture. We all love aviation, we all want it to thrive, and we all want to come back next year. To update Sarge's closing line from the old "Hill Street Blues" TV show: Know your limits, assess and plan for risk, and be careful out there.

And, have fun. That's what I do.

JAMES WILLIAMS

ATIS

Aviation News Roundup

Babbitt Named New FAA Administrator

On May 18, 2009, the Senate Commerce, Science, and Transportation Committee held a confirmation hearing for J. Randolph "Randy" Babbitt, the nominee selected by President Barack Obama to be the 16th FAA Administrator. An active GA pilot, Babbitt has more than 40 years of aviation experience. Babbitt began his aviation career as a pilot for Eastern Air Lines and flew for more than 25 years. He served as President and CEO for the U.S. Air Line Pilots Association (ALPA), the world's largest professional organization of airline pilots.

In his capacity as a specialized aviation and labor consultant, Babbitt has been instrumental in advising both airlines and labor unions throughout complex restructuring initiatives and negotiations. He also has been called upon by numerous clients to analyze and explain industry economic issues.

A Presidential appointee to the FAA Management Advisory Council, Babbitt helped direct and achieve significant improvements in aviation safety and influence regulatory policy in critical areas of the industry. He was recognized by *Aviation Week & Space Technology* with its Laurels Award for outstanding achievement in the field of Commercial Air Transport.

In 2008, Babbitt was named by the Secretary of Transportation to an independent review team of aviation and safety experts tasked with evaluating and crafting recommendations to improve the FAA's implementation of the aviation safety system and its culture of safety. The team provided detailed recommendations to the FAA across the areas of Airworthiness Directives, Voluntary Disclosure Programs, FAA culture, safety management systems, and the role of FAA inspectors.

Coming Soon: 2008 GA Survey

Please help FAA gather accurate information on general aviation activity and aviation safety. The 2008 General Aviation and Part 135 Activity Survey (GA Survey) is underway to track GA activity that took place in calendar year 2008. The FAA's annual GA Survey is the only source for information on the general aviation fleet, number of hours flown, and the reasons people use general aviation aircraft. Information from this survey helps determine funding for infrastructure and service needs and forms the basis for critical research and analysis of general aviation issues. The GA Survey is also used to prepare safety statistics and calculate the rate of accidents among general aviation aircraft and uses.

As a significant part of the GA fleet, FAA is focusing on improving data quality for high-end, high-use aircraft and is asking 100 percent of owners/operators of Part 135, turbine-powered aircraft, rotorcraft, Alaska-based aircraft, and special light-sport aircraft to participate in the 2008 GA Survey. To reduce the reporting burden for multiple-aircraft owners/operators, a specialized version of the survey has been developed that allows activity to be reported for an entire fleet on a single shortened form, instead of completing a longer questionnaire for each aircraft. This survey form was mailed to aircraft owners/operators in mid-May.

The GA Survey has been conducted annually since 1999 by PA Consulting Group, an independent research firm. Using an independent firm ensures that individual information is not reported to the FAA. Information is only used for statistical purposes and will not be published or released in any form that would reveal specific information for an individually identifiable respondent. All data are reported in aggregate and free of any information (aircraft, personal, etc.) that would allow answers to be traced back to an individual or company. PA Consulting Group maintains a unique identifier for the sole purpose of keeping track of who completed the survey.

If you receive a postcard or letter inviting you to take part in this study, please participate.

100 Years and Counting

Imagine it: Nearly 7,000 people gathering daily on Virginia's Fort Myer parade grounds to watch the flight training of U.S. Army officers. As this location was deemed too small, a new location was needed to safely instruct the fledgling pilots. It was during a routine balloon ascent that one of the trainees noticed a large level field near the B&O Railroad tracks and close to

the Maryland Agricultural College (now the University of Maryland). They thought the location was remote enough that it would hopefully discourage the large crowds. The theory didn't work. The year was 1909, the flight instructors were Orville and Wilbur Wright, and that level field is now known as College Park Airport—the world's oldest continually operated airport and the site of many significant aviation firsts.

This year, College Park Airport, known as the "Cradle of Aviation," celebrates its 100th anniversary. To mark its centennial, the College Park AirFair is scheduled on August 29 (no rain date) from 10 a.m. to 5 p.m. The air show is from 1 p.m. to 2:30 p.m. weather permitting. You can also visit the College Park Aviation Museum, a state-of-the-art facility filled with aviation memorabilia and located on the grounds of the airport. Its Web address is www.collegeparkairportmuseum.com.

College Park Airport remains an active airport. For six months after September 11, 2001, the airport remained open, but only to government aircraft. It then reopened to based aircraft, and then in 2003 to all transient pilots—once they cleared a one-time background check. For information on these procedures, see "VETTING PROCEDURES" link at: www.collegeparkairport.org.

FAA Issues AD on Cessna 150 and 152

FAA adopted a new airworthiness directive (AD) for Cessna Aircraft Company (Cessna) 150 and 152 series airplanes. This AD requires you to either install a placard prohibiting spins and other acrobatic maneuvers in the airplane or to replace the rudder stop, rudder stop bumper, and attachment hardware with a new rudder-stop modification kit and replace the safety wire with jamnuts. This AD results from investigations of two accidents where the rudder was found in the over-travel position with the stop plate hooked over the stop-bolt heads.

While neither of the accident aircraft met type design, investigations revealed that aircraft in full conformity with the type design can exceed the travel limits set by the rudder stops. FAA issued this AD to prevent the rudder from traveling past the normal travel limit. Operation in this non-certificated control position is unacceptable and could cause undesirable consequences, such as contact between the rudder and the elevator.

This AD went into effect June 17, 2009. For more information, visit:http://edocket.access.gpo.gov/2009/pdf/E9-11029.pdf.

FAA Opens Access to Bird Strike Data

On April 24, 2009, the FAA made its entire Bird Strike database available on a public Web site. Portions of the database have been publicly available since the information was first collected in 1990, but the public is now able to access all of the database's fields. The FAA has redacted a small amount of data in the database, e.g. personal phone numbers.

Over the next few months, FAA plans to improve the search function and make the database more user-friendly. In its current format, users can only perform limited searches online, but will be able to download the entire database. FAA also plans to work with the aviation community to find ways to improve and strengthen bird-strike reporting. The database can be accessed through: http://wildlife-mitigation.tc.faa.gov/public_html/index.html#access.

FAA Launches Summer Runway Safety Initiative

by FAA's Office of Runway Safety

Faced with the challenge of increased runway incursions, which are especially frequent in the summer, FAA's Office of Runway Safety launched a summer initiative aimed at reducing risks that lead to a runway incursion. The effort will reach pilots nationwide, but will be emphasized in areas where the seasonal increase in runway incursions is historically most pronounced. These areas include northwest and upper midwest states.

Since pilots may not take the time to read available literature on runway safety or to study FAA's Web site, the initiative's primary objective is to reach as many pilots as possible and stress the methods to maintain runway safety. "This becomes especially helpful for pilots who do most of their flying during the summer and who may be a little rusty on best practices for surface safety," said Wes Timmons, Director, Office of Runway Safety.

The summer campaign started with a mass mailing to pilots in specific areas within each of the targeted regions. This is being followed by an e-mail notification with links to further information, pilot meetings, and briefings with ATC. Pilots can access this information at http://www.faa.gov/airports_airtraffic/airports/runway_safety/.

One way you can help reduce runway incursions is to improve your airport situational awareness. Using resources like the *Aeronautical Information Manual* (AIM) can help you develop a good working knowledge of standards for airfield signs and markings. If you are uncertain about your position on the airport surface (and not on a runway or otherwise creating a safety hazard) stop and contact air traffic control. Always remember: "If in doubt, ask."

Aeromedical Advisory

FREDERICK E. TILTON, M.D.
FAA FEDERAL AIR SURGEON

Breathing Easy

Breathing is one of the most automatic things we do—more than 20,000 times a day. Each breath does two things: Inhaling takes in oxygen and exhaling expels carbon dioxide. It's a delicate balance. Exercise and stress increase production of carbon dioxide (CO_2) so we breathe faster to take in more oxygen at a greater rate and eliminate the CO_2.

Supplemental Oxygen

Breathing is a bit more complicated for aviators. As you learned in ground school, pressure at sea level is twice that at 18,000 feet MSL. Although the percentage of oxygen contained in air at 18,000 feet is identical to that at sea level (a little more than 20 percent), the amount of air our lungs take in with each breath contains half the oxygen found at sea level. Breathing faster or more deeply doesn't help. In fact, you'll aggravate the problem by exhaling too much carbon dioxide.

Unfortunately, the body doesn't give reliable signals at the onset of hypoxia.

The solution is simple, familiar to most pilots, and required by Title 14 Code of Federal Regulations section 91.211: Use supplemental oxygen. Regulations specify a 30-minute limit before oxygen is required on flights between 12,500 and 14,000 feet MSL and require its use immediately upon exposure to cabin pressures above 14,000 feet MSL. It's a good idea to go beyond the requirements: Use supplemental oxygen above 10,000 feet MSL and above 6,000 MSL at night because human vision is particularly sensitive to diminished oxygen.

We all react differently to the effects of hypoxia. Only physiological training can safely "break the code" for you.

Breaking the Code

Appropriate use of supplemental oxygen is important, because the human body doesn't give reliable signals at the onset of hypoxia, which is basically oxygen starvation. On the contrary, the earliest evidence of hypoxia is usually loss of judgment because the brain is the first part of the body to react to a diminished oxygen supply. Altitude chamber tests that duplicate high altitude flight conditions have shown that some people in an oxygen-deficient environment actually experience a sense of euphoria. Such is the insidious nature of oxygen deprivation. It steals the first line of protection—the sense that something is wrong.

We all react differently to the effects of hypoxia. Only physiological training can safely "break the code" on how it affects you as an individual. You can safely experience the effects of hypoxia under professional supervision at the Civil Aeromedical Institute's altitude chamber in Oklahoma City, as well as at 14 cooperating military installations throughout the United States. If you would like to attend a one-day physiological training course, ask your FAA Safety Team program manager for AC Form 3150-7. You'll learn to recognize your symptoms of hypoxia, which could one day mean the difference between life and death.

Want to Know More?

For more information on this subject and other important topics, take a look at the hypoxia information brochure at http://www.faa.gov/pilots/safety/pilotsafetybrochures/.

Good health and safe flying!

Dr. Tilton received both an M.S. and a M.D. degree from the University of New Mexico and an M.P.H. from the University of Texas. During a 26-year career with the U.S. Air Force, Dr. Tilton logged more than 4,000 hours as a command pilot and senior flight surgeon flying a variety of aircraft. He currently flies the Cessna Citation 560 XL.

SUSAN PARSON

Happy Birthday LSA!

Photos by: H. Dean Chamberlain

It may seem like it started only yesterday, but the Sport Pilot/Light-Sport Aircraft rule (SP/LSA) celebrates its fifth "birthday" this summer. In many families, making a "how-tall-are-you-now" mark on the wall is a time-honored birthday tradition. In keeping with that concept, this article reviews and celebrates the mark SP/LSA has made since it joined the aviation family back in 2004.

My, How You've Grown!

In developing the SP/LSA rule, FAA's intent was to increase safety by closing gaps in existing regulations, accommodate advances in technology, provide for the manufacture of light-sport aircraft that are safe for their intended operations, and several other purposes. A key idea was to make it possible for more individuals to experience sport and recreational aviation in a manner that is not overly burdensome, but still safe.

Today, more than 2,000 individuals have earned sport pilot certificates, and numerous others have earned sport pilot privileges. Aircraft manufacturers have developed more than 90 new designs, and more than 800 factory-built special light-sport aircraft (SLSA) are recognized under the LSA rule. Many of these aircraft have high customer appeal designs and features that could inspire a new generation of pilots. In addition, many designs offer advanced safety features, including devices such as whole-plane emergency parachute systems, airbags, and single-button avionics that can automatically stabilize the aircraft.

FAA and ASTM

One of the reasons for this rapid growth is the LSA industry's use of industry consensus standards developed through ASTM International. This approach allows for more rapid design changes and also for quicker incorporation of changes and features resulting from safety findings. It is also consistent with a national policy that directs U.S. government agencies to use voluntary consensus standards in lieu of unique-to-government standards wherever possible. This practice helps eliminate the cost of developing separate government standards and decrease the cost and the burden of complying with agency regulation. FAA and industry will continue to develop and upgrade ASTM LSA standards as circumstances require.

The LSA industry's use of industry consensus standards allows rapid design changes and also for quicker incorporation of changes and features resulting from safety findings.

Because regulation of the LSA industry is so different, here's a quick review of how the

Many LSA designs offer advanced safety features, including whole-plane emergency parachute systems, airbags, and single-button avionics that can automatically stabilize the aircraft.

consensus standards process works. It's important to understand that the industry has been asked to take more direct responsibility for developing and maintaining standards for design, manufacturing, and continued airworthiness. Industry chose ASTM International to facilitate the development of standards for LSA. ASTM established the F37 Committee on Light-Sport Aircraft in 2004. Any interested person can join the F37 Committee. Several FAA employees participate on the committee in the standards development process, but FAA has only one official voter. The Committee revises existing standards or develops new ones in response to demand, regulatory requirements, or ASTM protocols.

Here's where it gets a little tricky. ASTM provides its approved standards to FAA, but FAA does not "approve" ASTM standards. Rather, the agency "accepts" them and publishes its acceptance in the *Federal Register*. The agency also updates the LSA standards matrix on the FAA Web site's Light-sport Aircraft page.

A final point: ASTM standards are not regulations. However, SLSA are required to be manufactured in accordance with the accepted consensus standard. That means that the SLSA manufacturer must monitor and correct safety-of-flight issues through the issuance of safety directives. The manufacturer must also have a continued airworthiness system that meets the identified consensus standard. The owner or operator of an SLSA must comply with each safety directive applicable to the aircraft, unless he or she uses an acceptable alternative means of compliance or obtains an FAA waiver from the provisions of the safety directive.

The Safety Story

Many eyes are on the LSA industry's safety record, and a number of safety monitoring initiatives have been established. For example:

- NTSB's SLSA Team. In early 2008, the National Transportation Safety Board (NTSB) established a team to specifically examine the special light-sport aircraft industry, review its accident data, and identify potential safety issues or trends.
- FAA Data Analysis. In addition to coordinating with the NTSB, FAA conducts its own review of LSA-related safety data and takes action as needed. So far, FAA accident data indicate that in general, accident root causes are those common to other segments of general aviation (i.e., not unique to LSA).
- FAA LSA Assessment Project. Also underway is the agency's LSA assessment project, which started as a result of discussions at the 2008 Joint Experimental Aircraft Association (EAA)/FAA Recreational Aviation Summit.

Two of the project's three phases have been completed with data collected from 30 LSA manufacturers, distributors, and aircraft dealers. Preliminary results highlighted several areas for improvement and the LSA industry is working cooperatively with FAA to address the issues identified in the assessment project.

- Industry and Government. Another promising safety development is the February 2009 creation of an FAA/Industry LSA Joint Steering Group. The group's purpose is to address flight safety issues, certification standards, and accident causes. The group will release a charter defining its membership and an action plan at EAA AirVenture® this summer.

A Bright Future

More than ever, FAA is committed to LSA and has expanded its internal team to include members from the Aircraft Certification Service, the Flight Standards Service, Accident Investigation, and Aerospace Medicine to help manage the different areas associated with LSA. FAA shares the hope that the still-developing opportunities enabled by the SP/LSA rule will inspire a new generation of aviation enthusiasts.

Susan Parson is a special assistant in Flight Standards Service's General Aviation and Commercial Division. She is an active general aviation pilot and flight instructor.

For More Information

FAA Accepted ASTM Consensus Standards
http://www.faa.gov/aircraft/gen_av/light_sport/media/standards_chart_v3.pdf

Light-Sport Aircraft Accepted Standards
http://www.faa.gov/aircraft/gen_av/light_sport/media/accepted_standards_v2.pdf

Light-Sport Program
www.faa.gov/aircraft/gen_av/light_sport/

ASTM F37 Committee on Light-sport Aircraft
www.astm.org/COMMIT/COMMITTEE/F37.htm

Definition of LSA – 14 CFR 1.1
Definition of S-LSA – 14 CFR 21.190
Definition of E-LSA – 14 CFR 21.191

Look Who's Reading FAA Aviation News...
For high-performance safety information – aviation legend Sean D. Tucker reads FAA Aviation News.
FAA Aviation News

Making it Fun

Photos by — Dean Chamberlain

ARLYNN MCMAHON

Tips for Training Today's Pilots

"I took lessons a few years back, but I was frustrated with my progress. I knew that it would cost me more time and money than I had to invest. So, I dropped out."

Sad but true: The flight-training industry experiences a high student-pilot dropout rate and e-mails like the one above appear in flight school inboxes with depressing regularity. Happily, though, today the e-mails often go on to say something along these lines:

But now I'm thinking I could do sport pilot! Can you help me get back into flying?"

As chief instructor for a busy flight school, I see firsthand how the sport pilot certificate option—which marks its fifth "birthday" this year—is luring previous dropouts back to the skies. Designed to provide a more economical way for would-be pilots to experience and enjoy the fun inherent in flying, the sport pilot certificate certainly has the potential to deliver on both promises.

All too frequently, fun is the forgotten element in flight training.

From the outset, the challenge for the flight-training community has been to ensure that training for a certificate, meant to be economical and fun, does not mean "dumbing down" important aeronautical concepts. On the contrary! Pilots investing in this training expect to have fun learning to fly and they expect a modern training program that makes them confident of their ability to handle both the expected and the unexpected challenges that arise in aviation. The big question is: How do we meet that challenge?

More Value in Less Time

You may think scenario-based training (SBT) is just the latest buzzword, but I'm here to tell you that it's the perfect way to blend value and fun in flight training—a way to make the most efficient use of every hour in the sport pilot training syllabus. Here's an example. At my school in Kentucky, the first lesson is structured as an exhilarating flight following the Kentucky River. The short flight to reach the river provides just enough time for the instructor to introduce straight-and-level flight and let the student experience the effect of flight controls.

Then, the cool stuff starts. Here's how the rest of the first lesson goes:

After takeoff, the student is directed toward the river. The river snakes, sometimes in shallow curves, and other times in sharp switchbacks. "Okay, now let's have you fly over the river," the instructor explains. "I'd like you to try to stay exactly over the river. Try to anticipate the turn so that when the river bends sharply you'll turn steeper and when it curves gracefully, you can make a shallow turn." The pilot is focused outside the airplane during his task. He controls the plane and, at the same time, he is aware of the terrain features and obstacles below; like the 2,000 feet AGL power plant.

When the river meets I-75 the student is instructed to follow the road back to the airport.

Flying over the interstate seems easy after the previous maneuvering and the effects of wind are apparent flying over the straight highway. The instructor points to the city below and instructs the student how to climb to a higher altitude. Now the student is aware of the differences between flying over the congested area versus the rural area of the river. Soon, it's time to dial up ATIS and allow the tower to sequence them to the airport. The instructor says, "You're doing such a fine job, why don't you take charge of flying the airplane while I get our clearance?" The pilot grins and sits tall in the seat."

Adapted from *Train Like You Fly: A Flight Instructor's Guide to Scenario-Based Training*, ASA, 2008.

This simple scenario is fully engaging. Right from the start, the student learns to be active and aware, as opposed to simply responding to instructor commands. The SBT approach encourages—indeed, demands—that the student avoid the fledgling flyer's usual fixation on cockpit instruments. Instead, the student sees the big picture: Basic aircraft control, attitude flying, looking outside, terrain clearance, traffic avoidance, and the scenic beauty of the Bluegrass State. Furthermore, the student pilot already begins to understand how during each lesson he or she will be expected to handle certain aspects of the flight as pilot in command (PIC). It's perfect for the sport flyer (and the sport pilot instructor!), because it ensures that the 20 required hours of flight are packed with real-world concepts and practical teaching moments.

Train Like You Fly

SBT is not a new concept. Military flight-training programs are famous for their ability to successfully put low-time pilots into high-performance aircraft by using the "Train Like You Fly, Fly Like You Train" approach to SBT. Properly done, SBT is filled with incidental learning that helps the new pilot connect the individual pieces of the program. Learning how each individual maneuver works with other tasks to result in a successful flight vastly reduces the boredom of repeating a series of seemingly unrelated tasks in the air. It also makes the frustration of memorizing mnemonics unnecessary.

Let's look at another example. Years ago, a flight instructor may have scheduled a lesson including a maneuver you probably remember as "turns around a point." Today's enlightened instructor might introduce the lesson a bit differently:

A friend has suffered severe hail damage to one of his crop fields. He is especially concerned about one parcel of land. You will fly to a nearby airport to meet your friend. En route you will survey his field by air to assess the damage and take photos for his review. You'll land, share your findings about the damage with your friend, and then return home.

Okay, so you have to participate in a bit of role-playing. Before you start scoffing, though, think about it this way: Is there a pilot out there who doesn't love a reason to go flying? Is there anyone who wouldn't want to use his piloting skills to help a friend? This kind of scenario allows the instructor to cleverly package a series of necessary skills and maneuvers into a practical and efficient learning session. For example:

You may think that scenario-based training is just the latest buzzword, but it is the perfect way to blend value and fun in flight training.

- Tell your student that the farmer provided latitude/longitude coordinates for his damaged field. During the preflight briefing have the student locate the field on a sectional chart and choose a suitable nearby landing area to meet the farmer-friend.
- Once underway, use the field-survey scenario to help the pilot manage multiple cockpit tasks. At a minimum, these include basic airplane control, navigation, tracking a straight line, and terrain and obstruction clearance.
- Over the target field, have the student perform the traditional turns-around-a-point in each direction as part of the "damage survey."
- Your student practiced pilotage in getting to the field, so now let him or her practice using the GPS to fly to the destination airport.
- At the destination, the student listens to the AWOS, makes CTAF radio calls, enters the traffic pattern, and lands.

Getting Serious About Fun

See what I mean about checking off multiple practical test standards (PTS) tasks in just one compact SBT session? Wasn't that more fun—for both of you—than just turning around a point? Simply having a mission pumps up the fun-meter.

Now, let me share a few serious thoughts about fun. All too frequently, fun is the forgotten element in flight training, partly because there is so much to learn in a relatively short time. If you think fun can be relegated to that "nice-to-have-but-not-really-essential" category, consider these facts. According to Mike Collins, editor of AOPA *Flight Training* magazine, "The AOPA Air Safety Foundation estimates the dropout rate at 60 to 70 percent." Cost is undeniably a factor, especially in a tough economy. Yet, it is little wonder that students lose their love of flying after endless hours of practicing boring and seemingly irrelevant maneuvers in a corral known as the "practice area."

A good scenario allows the instructor to cleverly package a series of necessary skills and maneuvers into a practical and efficient learning session.

The SBT approach allows you to use the world as your practice area. In my area, a favorite scenario takes students to a nearby fish hatchery. It's a destination, clearly marked on the chart, and the scenario is packed with adventure. Yes, the maneuvers are there, but they are introduced as they would be seen in the context of a real flight. That alone helps maintain the student's enthusiasm and motivation for flying. When student pilots are happy, flying regularly, and making good progress, life is good for everyone.

You don't just have to take my word for it. Let's compare two flight schools and look at how SBT affected students at each one. The flight school where I serve as chief instructor has two training facilities with one in Lexington, KY (KLEX) and the other in Louisville (KLOU), which is 50 miles away. The KLEX campus fully embraced SBT; KLOU did not. The two schools—owned and operated by the same people, using the same type of airplanes, flying in similar airspace—saw very different results in pilot training.

Over a five-year period, KLEX pilots engaged in training 2.6 times each week and flew 6.0 hours per week. KLOU pilots engaged in training 1.1 times, flying 0.9 hours. KLEX consistently graduated students with 20 percent fewer flight hours. And, importantly for the future of flight training, KLEX pilots reported greater satisfaction and more enjoyment with flight training. The enjoyment and satisfaction—the "fun factor"—at KLEX resulted in pilots who flew more often, graduated in fewer hours, and spent less money on training.

While SBT skeptics and sport-pilot naysayers stand on their soap-boxes and demand more "proof" before embracing a different approach, modern instructors are improving the student dropout rate by making training fun, practical, and economical. If we could save just half of the 70 percent of students who drop out each year, then about 20,000 new pilots would be joining our ranks each year and helping general aviation thrive. That sounds like plane fun!

Arlynn McMahon is the 2009 National CFI of the Year and author of Train Like You Fly: A Flight Instructor's Guide to Scenario-Based Training.

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SUSAN PARSON

Checklist

Pilots, Planes, & Products

For one glorious week every summer, EAA AirVenture Oshkosh® brings all kinds of pilots, planes, and products together to see and be seen. Thanks in part to the Sport Pilot/Light-Sport Aircraft Rule, the variety of aviators, airplanes, and avionics available for viewing has expanded dramatically since the rule took effect in 2004. By allowing a basic "fly for fun" level of certification with just 20 hours of required training, the sport-pilot option is building the pilot population. The light-sport aircraft portion of the rule has stimulated dozens of new aircraft designs, as well as advanced "glass cockpit" avionics once seen only in airliners.

Five years ago, the fizz was also tinged with fears: Some believed that letting inexperienced pilots fly new-design aircraft with advanced avionics was a sure recipe for safety disaster. The SP/LSA safety statistics tell a much happier story, but—as implied in Flight Standards Director John Allen's Jumpseat column—"happily ever after" in aviation safety requires a strong day-by-day personal commitment to risk management.

Risk Management Handbook

You're not alone if you don't have a clear understanding of what "risk management" entails. Fortunately, a new product from FAA is here to help. The Risk Management Handbook (FAA-H-8083-2), now available on FAA's Web site, is a first-time publication designed to introduce the basic concepts of risk management.

This handbook offers practical tools that pilots at every level can use to systematically identify, evaluate, and reduce the risk posed by each flight. These tools include information on developing personal minimums; checklists; and scenarios for risk management, flight planning, and training. Although the handbook uses a few mnemonics, it's not about memorizing acronyms. The goal is for pilots to choose a risk management tool that can be readily remembered and, most importantly, consistently used to make every flight safer.

Advanced Avionics Handbook

An important component of aviation risk management is understanding the aircraft and its systems. Both new pilots and those pilots new to "glass cockpit" technology can benefit from material in FAA's new *Advanced Avionics Handbook* (FAA-H-8083-6). Also a first-time publication, the *Advanced Avionics Handbook* is designed to provide general aviation pilots with comprehensive information on advanced avionics equipment available in technically advanced aircraft. This handbook's chapters include a detailed introduction to electronic flight displays, GPS and area navigation (RNAV), automated flight control systems, and advanced information systems such as weather data link and terrain awareness.

FAA's *Risk Management Handbook* offers practical tools that pilots can use to systematically identify, evaluate, and reduce the risk posed by any given flight.

Though it cannot substitute for the manufacturer's guidance on operation of any particular avionics system, this handbook does a great job in presenting fundamental operating concepts for these systems.

The *Advanced Avionics Handbook* does a great job in presenting fundamental operating concepts for these systems.

Happy reading, and happy flying!.

Susan Parson is a special assistant in Flight Standards Service's General Aviation and Commercial Division. She is an active general aviation pilot and flight instructor.

For More Information

Risk Management Handbook
http://www.faa.gov/library/manuals/aviation/media/FAA-H-8083-2.pdf

Advanced Avionics Handbook
http://www.faa.gov/library/manuals/aviation/media/FAA-H-8083-6.pdf

Be a Good Sport (Pilot)!

BY DOUG STEWART

Photos by H. Dean Chamberlain

I am privileged to fly and instruct in a wide range of aircraft, including the technologically advanced general aviation aircraft that are increasingly used for personal transportation. Still, I relish the sheer fun of flying and I often yearn for a bit more of the wide-open-skies freedom that aviators of yore enjoyed. That's why I'm one of the most enthusiastic proponents of sport pilot and recreational pilot certificates and the development of light-sport aircraft (LSA). These new possibilities create many opportunities for flying fun and can offer a lot more freedom than the personal transportation crowd can get from waypoint-to-waypoint flying in the system.

Freedom Means Responsibility

Freedom, however, always comes with responsibility. Regardless of certificate level or equipment type, all aviators are obligated to follow the regulations and procedures established for our mutual safety. One of these rules is the requirement to become familiar with all available information before a flight. Let me give you an example of how deficiencies in this area can put both safety and our continued freedom to fly at risk.

Regardless of certificate level or equipment type, all aviators are obligated to follow regulations and procedures established for our mutual safety.

A couple of years ago, having just returned from EAA AirVenture®, I was at the airport awaiting the arrival of two clients in their Cessna *Cardinal*. I was using a handheld transceiver to monitor the Common Traffic Advisory Frequency (CTAF). I listened to the Automated Weather Observation Service (AWOS) frequency to see if my own weather observations matched those of the robot stationed at the north end of the field. The AWOS broadcast included the usual announcement of Runway 21 as the preferred calm-wind runway. It also repeated the *Notice to Airmen* (NOTAM) regarding the CTAF frequency change that had been made five months earlier.

Shortly after that I heard my clients announce the 45-degree entry for downwind to Runway 21. With the windsock hanging limp on its pole, they had clearly made the appropriate choice of runway. Then, I noticed a Piper *Super Cub* making the base-to-final turn—for Runway 3! Although radios are not required, I had certainly not heard this pilot announce any of his intentions. Assuming that it might be a *Super Cub* without a radio installed, I watched as he executed a beautiful short-field landing, touching down in a perfect three-point landing.

Say It Again, Sam!

As the *Cub* taxied up to the self-serve fuel pump, I strolled in his direction. My inbound client was on a mid-field downwind for Runway 21, so I figured I had a few minutes to chat. The *Cub* looked familiar, and suddenly I realized that the pilot of this PA-18—we'll call him "Sam"—had been a former client. Indeed, he had been quite a challenge for

me as an instructor. His stick and rudder skills were strong, but the Sisyphean chore was trying to help this pilot overcome his hazardous anti-authority attitude. It looked as if perhaps I still had work to do.

Sam climbed out with an excited, "Hey, Doug! Check out the mods I've done to my *Cub*!" He was eager to show me a new 200 HP engine as well as all the improvements to his panel. These included space-saving avionics and a GPS, and also a transponder and a transceiver. Watching my clients touch down on Runway 21, Sam snorted in disgust: "Can you *believe* those folks in that airplane that just landed! They didn't make a single radio call, and they just landed on the wrong runway. Someone should say something to them, before they hurt somebody!"

I could only shake my head. "Sam, what frequency were you on?" He responded, as I expected, with the CTAF frequency that had been changed months before. My next question was, "Did you listen to the AWOS before you got here?" Again, I got the answer I had unfortunately expected: "No, I just came overhead and looked at the sock. You know those AWOS things, can't ever trust 'em."

My next question: "And what was the sock doing when you looked at it?"

"Hanging limp," said Sam.

"Well, Sam, if you had listened to the AWOS, in addition to all the pertinent weather information, like the ceiling, winds, and altimeter setting, you would have also heard that the preferred calm-wind runway is Runway 21. And, you would have heard that effective March 1, the new CTAF frequency for this airport is 123.05. It changed five months ago."

I was glad to see a look of embarrassment finally appear on Sam's face. Then, he got cocky. "But Doug, I looked up the frequency on my new GPS, and it said 122.8."

Can you anticipate the next part of this story? If you guessed that perhaps Sam's GPS database wasn't current, you would be correct. When he gave me his handheld, I quickly established that the database had expired more than a year ago. "Sam, don't you think it's time to update this unit before it leads you into some serious trouble? It looks like not too much has changed over the years, has it? Keep your airspeed up."

Too Many Dumb Pilots

Sam may have disappointed me on an individual level, but the truly troubling thing is that he is not unique. Every day, pilots do "Sam-like" stunts, such as landing against the flow of traffic. Flying an LSA for sport and recreation doesn't excuse any of us from following the rules, such as the preflight action requirement of Title 14 Code of Federal Regulations (14 CFR) section 91.103 which states, in part, that "Each pilot in command shall become familiar with all available information concerning that flight." That specifically includes runway lengths at airports of intended use, as well as takeoff and landing distance information.

For IFR flights or a flight not in the vicinity of an airport, it also includes weather reports and forecasts, fuel requirements, and alternatives available. Though it doesn't specifically mention NOTAMs, I interpret "all available information" to include these notices, which cover important items such as frequency changes, navaid outages, airport closures, fuel availability, and temporary flight restrictions (TFR). I also feel safe in assuming the FAA expects pilots to have current charts and aeronautical publications.

Flying an LSA for sport and recreation doesn't excuse any of us from following rules, such as the preflight action requirement of 14 CFR section 91.103.

Everything in aviation is dynamic, from weather to frequencies, airspace, airports, navaids, technology, and even runway numbers. The list could go on, but the point is short and sweet. It behooves every one of us to find out all we possibly can about our flights prior to every single flight that we make. Please be sure, when blue skies and tailwinds are beckoning you, that you're a good sport. Our mutual safety depends on it!

Doug Stewart is the 2004 National CFI of the Year, a Master CFI, and a DPE. He operates DSFI, Inc (www.dsflight.com) based at the Columbia County Airport (1B1) in Hudson, New York.

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HELEN WOODS

Grass is a Gas!

Ensuring Safety on Sod

Photos by John Williams

On a recent vacation, I found myself settling my 1965 Cessna Skyhawk down on a beautiful grassy strip at a cattle ranch in North Dakota. Blue-winged teal and monarch butterflies circled the ponds bordering the runway as lazy cumulus clouds drifted by on endless prairie horizons. What a wonderful gift my instructor gave me when he taught me how to safely land on a grass runway! It is places like this that make being a pilot so worthwhile.

It is an unfortunate fact that while all sport and private pilot applicants are taught "soft-field technique," very few pilots these days are trained on actual grass or, for that matter, even verbally instructed in the many aspects of a grass landing, which make it different from landing on a paved runway. Insurance company requirements (and prohibitions) play a role in some cases, and it is true that accident rates are higher on unimproved runways. Even a quick review of recent accidents involving grass runways, though, suggests that ignorance of the operational nuances of this environment plays a far greater role. A bigger issue, at least in my view, is lack of experience and knowledge about operating on grass.

Nose-wheel Versus Tailwheel

One common misconception about landing on grass is that a tailwheel aircraft is required. A tailwheel aircraft certainly is preferred for two reasons: less surface drag with only two large wheels in the grass and no chance of the nose-wheel dropping into a hole and resulting in a prop strike. That being said, many tricycle-gear aircraft, especially high-wing planes like Cessnas, which allow for easy assessment of runway conditions, can be operated safely on grass with proper training and caution.

One note: It is best to remove the wheel pants on any aircraft prior to grass training. While this is not a prerequisite on a well-manicured runway, removing the wheel pants will decrease the

ground roll somewhat and save wear and tear. It will also allow you to inspect for grass or other debris that may become entangled in the brakes.

Runway Condition

Proper assessment of the runway condition, when making a land/no-land decision, is the most critical skill for any pilot learning to land on grass. A pilot should learn to make a low pass over a grass runway to assess its condition prior to making this decision. The basics that pilots already learn about assessing runway length, density altitude, and aircraft performance still apply, of course, but many other factors apply to operations on grass. For instance, the length of the grass runway plays a critical role in takeoff decisions. A typical Cessna pilot's operating handbook suggests adding 10 percent to the takeoff roll when calculating takeoff distance, but does not specify how tall the grass is for this performance figure. Tall grass will likely require a much longer takeoff roll. Regardless of grass height, the pilot must understand that operating on grass will require more takeoff distance than for a paved runway.

Another advantage of the low pass is it allows a pilot to assess the runway for smoothness. Many parts of the country are populated by gophers or prairie dogs, both of which create holes in runways large enough to catch a nose-wheel. The low pass also allows a pilot to check for ruts in the runway, such as those created by aircraft or mowing equipment operating on the runway when it was wet. Such ruts can be as dangerous as critter holes to the propeller of a tricycle-gear airplane.

Additionally, the low pass will often allow the pilot to inspect for soggy areas where a plane might become mired in the mud. Soggy areas may appear as standing water, but more commonly they can be detected as an area with a different color turf. Also, look for unmowed patches of turf. These may indicate areas that were too soggy for mowers to cut.

Weather Considerations

Weather plays a major role in determining the conditions of a grass runway. Dew and frost negate the braking authority you might have while operating on a dry grass runway, and braking in wet conditions risks loss of directional control. Pilots thus need to learn not only how to recognize conditions of dew and frost, but how to perform a short-field landing without the use of brakes.

Few pilots are trained on actual grass or even verbally instructed in the many aspects of safe operation on grass.

As a newly minted pilot, a good friend of mine learned this lesson the hard way. Landing on a dew-covered field, he quickly discovered that he had no braking ability. Too late, he went around, plowing though soybeans at the end of the field before finally becoming airborne. He was lucky. Aside from having to remove large bunches of soybean plants from his landing gear and mending his bruised ego, he emerged from the experience unscathed. Many others do not.

Also remember that when assessing runway conditions, pilots should be taught to consider weather conditions in the recent past. Rains in the past few days can make a runway soggy, allowing an aircraft to sink in the sod and dramatically increasing the takeoff roll.

Private Strips

The majority of the grass runways in the United States are privately owned and operated. To operate on such runways, the pilot must obtain permission from both the field owner and the aircraft owner prior to landing. Phone numbers for

Private grass field runways offer an ideal supervised flight-training environment. However, many private fields do not meet FAA construction standards, so beware of potential hazards like hills, dog-legged fields, trees near the runway, nearby power lines, or nearby streams or creeks that can make the areas of the runway soggy or wet after other areas are dry. Also, be aware of people, animals, and agricultural equipment that might be operating near or on the runway.

many private field owners can be found at www.airnav.com. During the initial phone call, obtain as much information about the runway conditions as possible. Remember that privately-owned fields do not need to meet FAA and state requirements for runway construction. It's a good practice to plan your arrival while you have plenty of daylight remaining, so you can perform a high pass before a secondary low pass to inspect runway conditions. A high pass will allow the pilot to inspect the strip for unmarked power lines, encroaching trees, large hills or slopes, and parts of the runway that might be unusable for various other reasons. If you don't like what you see, the daylight conditions make it easier to proceed to your alternate airport.

Privately-owned fields do not need to meet FAA requirements for runway construction, so it's a good idea to perform a high pass before a secondary low pass to inspect runway conditions.

Trees aren't just a hazard when they are at the end of a runway: They can also create unfavorable windshear when growing adjacent to the runway. Many private strips are narrow, with trees lining the edges. In such a situation, a crosswind can create windshear conditions over the runway. Such conditions can blow a pilot into the trees or, if the pilot compensates with increased power, can cause a pilot to land long and overshoot the runway. Teach pilots to always consider the location of trees and other obstacles relative to wind direction before performing the low pass.

Being trained to land at grass fields can take pilots to some of the most fun and beautiful parts of the country.

Personal Minimums

Any discussion of grass-runway operations requires a discussion about personal minimums. Every condition outlined is one for which pilots need to set personal minimums. Common sense and good judgment dictate that pilots should receive dual instruction in grass operations prior to attempting it alone. Only in a dual-instruction environment can the pilot safely experience a grass runway for the first time and begin to set personal minimums for operating on these fields.

Why Bother?

With so many things to consider, why bother to learn proper grass techniques? There are many good reasons. Even if you live and train in a major city with plenty of paved runways, the rest of the country is different. You fly in order to go places and more of the country is open to a pilot with grass-runway operating skills—especially in the plains states, where the wind is always strong and most airports have a turf-crosswind runway. Very often it is considerably safer to land on the turf-crosswind runway than the paved runway. Do you really want to limit your choice to landing on the paved runway with a strong unfavorable wind or trying grass for the first time without proper training?

Another reason is that learning proper grass techniques provides pilots with good training for an emergency situation. Whether it's mechanical problems or bad weather closing in, there are many instances when a precautionary landing is wise. In such instances, a good grass strip may be a much closer choice than a paved airport. Proper grass-field training dramatically increases your landing options.

Finally, being trained to land at grass fields can take pilots to some of the most fun and beautiful parts of the world. Whether it is an antique fly-in at a historic grass field or a spectacular ranch vacation out on the plains, grass fields are often where you will find the most fun!

Helen Woods is manager and head flight instructor of Chesapeake Sport Pilot, LLC, the nation's largest light-sport flight school, located at the Bay Bridge Airport in Stevensville, Maryland.

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MARTIN BAILEY

Nuts, Bolts, and Electrons

A Heavy Dose of Light-Sport

An Inside Look at Light-Sport Aircraft Maintenance Responsibilities

Are you confused about some of the maintenance regulations for light-sport aircraft (LSA)? Don't worry, you're not alone. In this article, we'll look at some examples that illustrate the "do's and don'ts" for LSA maintenance, as well as some the significant differences you'll find among experimental light-sport aircraft (ELSA) and special light-sport aircraft (SLSA).

What Exactly Is a Light-Sport Aircraft?

With today's stressed economic environment, general aviation has taken quite a hit in terms of growth and activity. The one bright spot, however, has been the growth of the LSA industry. Figures from the recent 2009 FAA Aviation Forecast Conference show the LSA market growing at a rate of 12 percent annually from now until 2012. Reduced costs of purchasing and building, as well as less restrictive regulations for maintaining and training in an LSA has caught the eye of many an aviator.

Plainly stated, an LSA is a simple, low performance, low energy, single-engine aircraft with a maximum weight of 1,320 pounds (1,430 pounds if used for water operations). It is designed for one or two occupants and must meet the parameters specified for a light-sport aircraft in Title 14 Code of Federal Regulations (14 CFR) part 1.1. Because of these unique restrictions, the FAA has been able to develop policies and regulations outside the traditional regulations for general aviation. Among the significant differences are the requirements for maintenance procedures.

SLSA Versus ELSA

Aircraft characterized as ELSA do not fall under part 103 operations. They are often assembled from a kit and are certificated under Title 14 Code of Federal Regulations (14 CFR) section 21.191(i)(1),(2),(3). Aircraft characterized as SLSA, on the other hand, are manufactured to an industry standard, sold as "ready-to-fly," and certificated under 14 CFR section 21.190. Both ELSA and SLSA are issued a special (pink) airworthiness certificate (Form 8130-7 with attached operating limitations).

Because LSAs can involve federal and/or manufacturer-based regulations and limitation standards, there are differing levels of restriction and distinct maintenance requirements for each of the two. The following scenarios are intended to highlight key differences in maintenance procedures for ELSA and SLSA:

One important point to keep in mind with LSA is that the manufacturer has final say as to who can work on the aircraft.

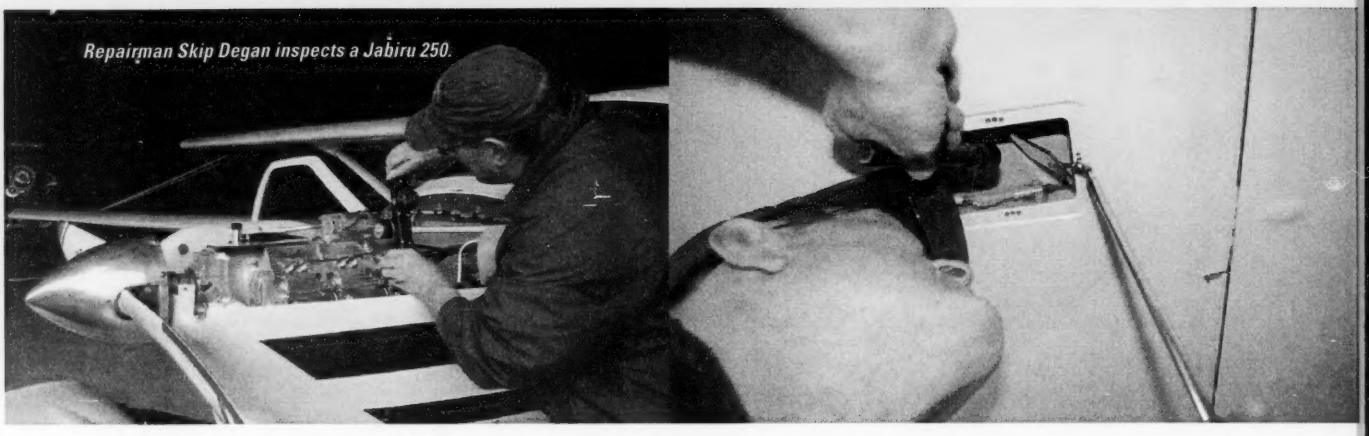
Logbook Entry for Annual Condition Inspection

Johnny Wrench, a certificated A&P, just completed an annual condition inspection on an ELSA powered parachute. He documented the following in the maintenance logbook:

> *"I certify that this aircraft has been inspected on July 1, 2009, in accordance with the scope and detail of Appendix D to part 43, or the manufacturer's maintenance and inspection procedures, and was found to be in an airworthy condition."*

Is Johnny's logbook entry correct?

No. When performing a condition inspection on an ELSA or SLSA aircraft, the word airworthy is not used. Instead, Johnny should have noted the aircraft was in a "condition for safe operation." SLSA and ELSA aircraft do not have FAA-approved type designs, so the term "airworthy" is not used. You can also check the operations limitations issued with the airworthiness certificate for the correct wording to use.



Repairman Skip Degan inspects a Jabiru 250.

ELSA Maintenance Requirements

Ronnie Rivet was flying his new ELSA gyroplane when he noticed a crack in the windshield. Ronnie is familiar with this type of repair but is not an A&P or certificated light-sport repairman. Can he perform the windshield repair by himself?

Yes. Any individual, regardless of his or her certification level, can perform this procedure, or for that matter, any maintenance, preventive maintenance, repairs, or alterations to ELSA. Keep in mind, however, that Ronnie should perform the maintenance in accordance with standard practices.

SLSA Maintenance Requirements

Mary Micrometer owns a small flight training school using airplane-class SLSA aircraft. She also employs two mechanics. Rusty holds a light-sport repairman certificate with a maintenance rating. Tim holds a light-sport repairman certificate with an inspection rating and is taking the 80-hour training course for a maintenance rating (glider class). Rusty delegates the responsibility for performing a 100-hour inspection of the flight school's airplane-class SLSA to Tim so that it can be used later that day for a training flight. Is Tim legal to carry out this task without a completed maintenance rating on his repairman certificate? Or, will he need to first complete his 80-hour course?

No, on both counts. Tim has a light-sport repairman certificate with an airplane-class inspection rating and can perform an annual condition inspection on an aircraft owned by him, but he is not authorized to perform the 100-hour required by 14 CFR section 91.327. The 100-hour inspection requires a repairman certificate with maintenance rating. Although Tim has almost completed his 80-hour course for a maintenance rating, it is for glider class, which means that completing the course would still not authorize him to perform the 100-hour inspection on an airplane-class light-sport aircraft.

Airframe and Powerplant Rating Privileges

Using the same SLSA flight school above, Mary hires an A&P-rated mechanic, Stan, who has just begun training for a light-sport repairman certificate. Rusty asks Stan to replace a propeller on one of the school's SLSA aircraft and return the aircraft to service. The propeller is not an FAA-approved part nor is the installation an FAA-approved procedure. Is Stan legal to perform this task?

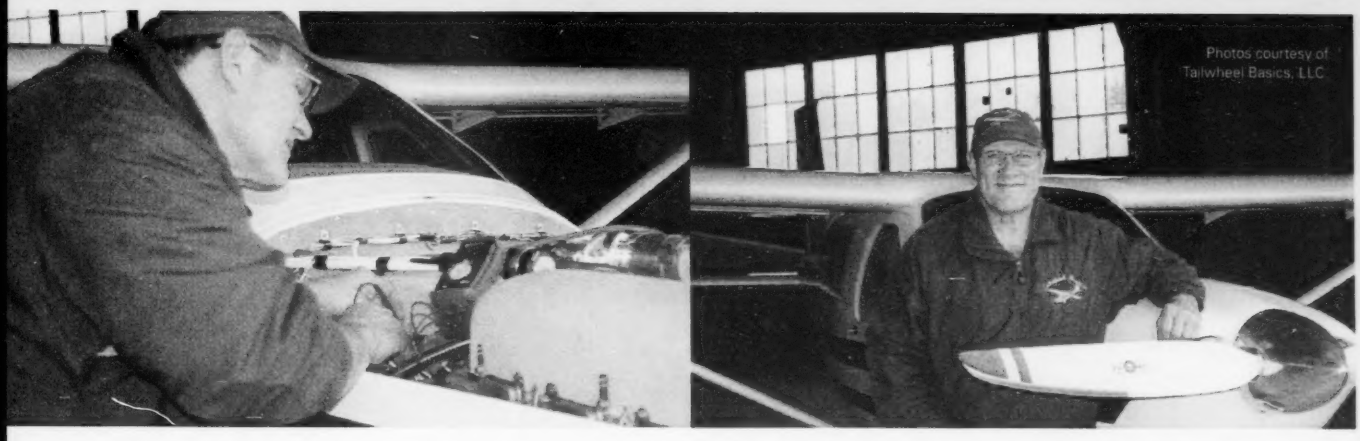
Yes. An A&P rated mechanic can approve and return to service an airframe/powerplant/propeller, or any related part or appliance, of an SLSA aircraft after performing and inspecting a major repair or major alteration. This approval authority also extends to products that are not produced under an FAA approval, provided the work was performed under instructions developed by the manufacturer or a person acceptable to the FAA (see 14 CFR sections 65.85 and 65.87).

Safety Directive Compliance

Continuing with the same SLSA flight school example: Mary has received several safety directives (SD) from the manufacturer of the flight school's SLSA fleet. Mary realizes performing the work

Top Five LSA Maintenance Reminders

1. Always check the manufacturer's operating limitations.
2. Read the maintenance manual to determine if you are allowed to do the work.
3. "Airworthy" does not belong here—use "in condition for safe operation."
4. No Form 337 required for SLSA, unless it is an FAA-approved component.
5. Task-specific training could apply to aircraft components.



Photos courtesy of Tailwheel Basics, LLC

required by these SDs will significantly affect the peak summer season of flight training. Since the SDs are not FAA-issued, Mary plans to delay taking action until the fall, well past the established compliance date. Can Mary still operate the aircraft in her fleet?

Yes and no. Noncompliance with a manufacturer-issued SD will prohibit Mary from using the aircraft under SLSA airworthiness certificates. However, Mary can opt to surrender the SLSA airworthiness certificates to FAA and apply for ELSA airworthiness certificates instead. If approved, the aircraft can still be flown—but a consequence of flying them under ELSA operating limitations is that they can no longer be used for hire or for training.

Please note that Mary does have some options for complying with the SD. According to 14 CFR section 91.327(b)(4), she can:

A) Correct the unsafe condition in a manner different from that specified in the SD provided the person issuing the directive concurs with the action; or

B) Obtain an FAA waiver from the provisions of the SD based on a conclusion that the SD was issued without adhering to the applicable consensus standard.

Major Repairs/Alterations

Tommy Torque owns a weight-shift control SLSA aircraft with a type-certificated (TC) engine. He is a certificated light-sport repairman and has completed the 104-hour training course to receive a weight-shift control class maintenance rating. Tommy wants to install a new oil filter, for which there is a supplemental type certificate (STC). He installs the filter per the manufacturer's procedures, notes the procedure in the logbook, but does not complete a Form 337. Is Tommy following proper procedures?

No. First, even though there is an STC to install a filter on a TC engine, Tommy must submit a request to the aircraft manufacturer for installation approval on that particular aircraft. Once approved and the procedure is completed, it must also be recorded on a Form 337 since it is an FAA-approved part. The ASTM data approved by the SLSA manufacturer for major repairs and alteration is FAA-accepted data and is required to be recorded in the aircraft records according to ASTM F 2483-05, section 9, 1-4. If it had been a non-FAA-approved part, a Form 337 would not be required.

Because LSAs can involve federal and/or manufacturer-based regulations and limitation standards, they are subject to differing levels of restriction and distinct maintenance requirements.

Questions?

Many resources exist to help you answer questions like the ones above. Check out the resources listed under "For More Information" for a list of the key documents.

Martin Bailey is manager of Flight Standards Service's Repair Station Branch.

Tom Hoffmann and Caleb Glick contributed to this article. Hoffmann is a private pilot and holds an A&P certificate. Glick is an aviation safety inspector (airworthiness) with the Flight Standards Service's General Aviation and Avionics Branch and is the point-of-contact for light-sport maintenance.

For More Information

AC65-32 – Certification of Repairman (Light-Sport Aircraft)
http://rgl.faa.gov/, click Advisory Circular and search AC65-32

LSA Repairman certificate: eligibility, privileges and limits
14 CFR section 65.107

Order 8130.2F - Airworthiness Certification of Aircraft and Related Products
http://rgl.faa.gov/, click Orders, then search for Order 8130.2F

LSA Statement of Compliance Form
http://forms.faa.gov/forms/faa8130-15.pdf

STEVE THOMPSON

What's Your Type?

Photos by H. Dean Chamberlain

One of the many rewards of taking part in general aviation is the opportunity to join like-minded people in pursuit of a common interest. You can see this "banding together" in the way homebuilders congregate to share lessons learned, special tools, or good barbecue. You can also see it in the way pilots swap stories and learn from one another in the time-honored tradition of hangar flying. But, perhaps nowhere is the value of airmen coming together for a common interest more evident than in the area of type clubs.

Type clubs have also been valuable in helping FAA understand service issues.

What Is a Type Club?

Type clubs are organizations formed around a common interest in particular types of aircraft. No matter the aircraft you own, operate, or maintain, chances are there is a type club (or two or three) for you. The collective knowledge and experience within a type club can be staggering. That feature alone makes it worth your time to check into the clubs that exist for your aircraft type.

Many type clubs host discussion forums, publish magazines, and keep libraries of technical information. Clubs often share field approval data, alert their membership to service issues, and serve as a resource for all kinds of information about restoring, maintaining, and operating specific types of aircraft. Some type clubs have even developed specialized training courses and voluntary inspection programs for various systems or entire aircraft types. In at least one case, a type club has become the type certificate holder for its airplane type. Type clubs are valuable for pilots and aircraft owners as well as for mechanics who maintain these aircraft.

Type Clubs and FAA

Type clubs have also worked with FAA and others to promote the safety of general aviation. For example, a few years ago type clubs teamed with general aviation manufacturers, associations, and FAA to develop the *Best Practices Guide for Maintaining Aging General Aviation Airplanes*. This guide provides tips for researching an airplane's records and maintenance history. The guide also includes a baseline checklist of voluntary inspection items that go beyond a typical annual inspection and also describes the role type clubs may take in maintaining and inspecting aging airplanes. Find the guide at: www.faa.gov/aircraft/air_cert/design_approvals/small_airplanes/cos/aging_aircraft.

Type clubs have also been valuable in assisting FAA understand service issues, which helps the agency take appropriate corrective actions when necessary. For example, one of the tools FAA's Small Airplane Directorate uses to gather information about an airworthiness concern is the Airworthiness Concern Sheet (ACS). FAA uses the ACS to describe the concern and request information from aircraft owners and operators through type clubs and aviation organizations, such as the Aircraft Owners and Pilots Association (AOPA).

Kim Smith, Manager of FAA's Small Airplane Directorate, says, "Type clubs are a terrific conduit for sharing information, not only among the club's

Homebuilders

The benefits of joining like-minded people are not limited to owners and operators of type-certificated aircraft. Homebuilders can find similar resources and opportunities for information sharing through the Experimental Aircraft Association (EAA). For more information, visit www.eaa.org/homebuilders. To find a local EAA chapter near you, visit www.eaa.org/chapters.

Type Clubs and EAA AirVenture®

If you're lucky enough to be at EAA AirVenture this year, you can visit the different type clubs. You can find a few of the larger type clubs in the exhibit buildings and several other clubs in the newly built Vintage Hangar just south of the VAA Red Barn.

members, but also between the club and the FAA. The knowledge we gain from type clubs often allows us to be more flexible in overseeing the safety of the fleet."

In cases when FAA determines that corrective action is needed, information supplied by the type clubs and associations has helped FAA develop appropriate actions. For example, there have been cases where type clubs told FAA about alternate inspection or repair procedures that FAA would otherwise not have known. This information allowed the agency to develop corrective actions that were not only effective, but that also may have resulted in lower cost and less downtime for owners and operators.

If you're not already a member of a type club, you may want to check it out. You could benefit, and you probably have something to offer the other members as well.

Steve Thompson is an aerospace engineer at the FAA's Small Airplane Directorate in Kansas City, Missouri. He holds a commercial pilot certificate with multi-engine and instrument ratings.

For More Information

For more information on type clubs, read Joe Dickey's article on the Vintage Aircraft Association (VAA) Web site www.vintageaircraft.org/who/typeclub.html

For a listing of type clubs and contact information, visit the Aircraft Owners and Pilots Association (AOPA) and Vintage Aircraft Association (VAA) Web sites at the addresses listed below:

AOPA: data.aopa.org/associations/
VAA: www.vintageaircraft.org/type/index.html

Calling All Mechanics

Keep Informed with

FAA's Aviation Maintenance Alerts

Aviation Maintenance Alerts (Advisory Circular 43.16A) provide a communication channel to share information on aviation service experiences. Prepared monthly, they are based on information FAA receives from people who operate and maintain civil aeronautical products.

The alerts, which provide notice of conditions reported via a Malfunction or Defect Report or a Service Difficulty Report, help improve aeronautical product durability, reliability, and maintain safety.

Recent alerts cover:

- Main gear down-lock switch failures on a Piper PA-32R-301T
- Broken piston skirt on a Continental IO-470-VO engine
- Frayed aileron cables on a Cessna 421B

Check out *Aviation Maintenance Alerts* at: *http://www.faa.gov/aircraft/safety/alerts/aviation_maintenance/*

MARK S. ORR

Fuel-ish Questions Fuel-ish Answers

Photos by H. Dean Chamberlain

Just a glance at the EAA AirVenture® grounds in Oshkosh reminds us that airplanes come in an amazing range of shapes and sizes. However they may differ in appearance, all powered aircraft share a need for fuel. Given the growing buzz about availability of fuels for reciprocating aircraft engines, here are a few answers to some "fuel-ish" questions.

Is My Fuel Certified?

FAA does not certify aviation fuel, but the agency has a role: FAA certifies use of the fuel in engines and aircraft. Specifically, FAA's Aircraft Certification Service administers safety regulations for type certification of engines and aircraft. As part of the type certification, standard specifications control the fuel(s) used to show compliance to the regulations. For certificated engines and aircraft, FAA considers the fuel specification an operational limitation. Steve Thompson's *Airworthiness 101* article in the May/June issue of the *FAA Aviation News* explained the type certification process and described the type certificate data sheet (TCDS). The TCDS, engine installation manual, aircraft flight manual, and aircraft placards all list approved fuels. It is the responsibility of aircraft operators to use only those fuels.

Like many other countries, the United States uses ASTM International (www.astm.org) specifications for aviation fuel. ASTM International is a consensus standards organization comprised of producers, users, and general interest groups that develop, issue, and maintain these fuel specifications and test methods.

Why Are Aviation Fuels Different?

The first aircraft used spark ignition piston engines burning the automotive gasoline that was available at

the time. Over the years, as aircraft engine designs evolved to produce more power with less weight, fuels evolved with them. Operational and research experience in the early part of the 20th century identified fuel parameters that affect engine and aircraft performance, such as density, energy content, vapor pressure, and knock performance. The first fuel specifications captured this experience and ensured more consistent performance. The industry developed the octane scale that indicates how resistant the fuel is to premature detonation, or knock, in the engine. Octane is the factor most associated with engine power and it became the fuel grade.

What Drives Availability of Fuels?

Demand. In the 1930s and 1940s, the military was a primary user of aviation gasoline. The large radial engines used in military aircraft at the time drove the introduction of fuel grades with higher octane. With the introduction of turbine engines in the 1950s, the military and commercial airline focus shifted to jet fuel. Consequently, the need for many of the grades of aviation gasoline decreased. Today, there are only four grades (80, 91, 100LL, and 100) listed in ASTM International Standard Specification D910. Market forces determine the grades produced. The predominant U.S. commercial aviation fuel for reciprocating engines is 100LL avgas.

Cost. Aviation fuel use and production is a fraction of the use and production of diesel, home heating, and automotive fuels, which affects the availability and cost of aviation fuels. For example, 100LL avgas represents fewer than 0.5 percent of the total gasoline produced in the United States and, because of its lead content, 100LL is produced, delivered, and stored separately from its unleaded automotive gasoline counterpart. This contributes to the higher cost of avgas compared with automotive gasoline.

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Environmental Concerns. The primary environmental concern for avgas is lead emissions. Though tetraethyl lead (TEL) has not been in automotive gasoline since the late 1970s, it remains an additive in aviation gasoline to boost octane for safety reasons. Introducing grade 100LL did reduce the added TEL amount, but FAA and industry have searched for an unleaded replacement for many years. So far, no one has found a "drop-in replacement fuel" that will cover all applications in the existing fleet. For example, though ethanol has been proposed, it is not a "drop-in." Among other issues, engine and aircraft performance tests have shown significantly reduced aircraft range that may not be acceptable for all operations.

Introducing New Fuels

In the United States, the path to introducing a new fuel goes through ASTM International, the engine and aircraft type design holders, and FAA. Introducing a new fuel requires testing of fuel properties, components, engines, and aircraft and a thorough technical and safety review of any issues.

Approaches to introduce new fuels include:

- Existing standard specification. An example of this approach is adding different grades of avgas to ASTM International Standard Specification D910. The grades in D910 differ only in the tetraethyl lead quantity added to produce the needed octane and the dye used to differentiate among the grades.

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  Historically, higher octane grades allowed for higher-power engines. Once fuels are included in the specification, those seeking design approval for engines and aircraft can use those fuels to show compliance with certification regulations.
- New fuel specification to replace an existing fuel. This approach introduced Grade 82UL aviation gasoline. The 82UL standard specification provides an aviation quality gasoline using available gasoline stocks that can be used in engines and aircraft with an autogas Supplemental Type Certificate (STC). FAA issued Special Airworthiness Information Bulletin (SAIB) CE-00-19 (http://rgl.faa.gov/) to communicate approval of 82UL as an alternative fuel for certain automotive gasoline STCs.
- New fuel specification for a new fuel. In the early 20th century, this approach produced the first specifications for aviation gasoline and then later for jet fuel. Currently, ASTM is working to introduce new unleaded avgas specifications keeping D910 as the leaded avgas specification. Once the new specification is approved and released, those seeking design approval for engines and aircraft can use fuel that meets this specification to show compliance with certification regulations.
- Hybrid approach. This approach is currently the path used for alternate jet fuels, allowing the introduction of new synthetic turbine fuels. A new specification will list the performance properties of new fuels as

ASTM International Standard Specifications for Aviation Fuel

Representatives from the FAA Small Airplane Directorate, FAA Engine and Propeller Directorate, and FAA Technical Center Aviation Fuel and Engine Test Facility (AFETF) participate in the ASTM International D02.J0 Subcommittees responsible for the four aviation specifications below. The FAA does not participate on subcommittee ASTM D02.A0.01 that covers the automotive gasoline specification. The owners of the autogas Supplemental Type Certificates (STCs) are responsible for monitoring the changes in automotive gasoline specifications.

ASTM International Standard Specification	Fuel	ASTM Subcommittee
D910-07a, Standard Specification for Aviation Gasolines	Grades 80, 91, 100LL, 100	D02.J0.02
D1655-08a, Standard Specification for Aviation Turbine Fuels	Jet A, Jet A-1	D02.J0.01
D6227-04a, Standard Specification for Grade 82 Unleaded Aviation Gasoline	Grade 82	D02.J0.02
D6615-06, Standard Specification for Jet B Wide-Cut Aviation Turbine Fuel	Jet B	D02.J0.01
D4814-09, Standard Specification for Automotive Spark-Ignition Engine Fuel	Automotive Gasoline grades	D02.A0.01

blended with Jet A/A-1 and allow designation of the blend as a D1655 fuel. Each new fuel would be a blend component with detailed requirements listed in individual annexes to the main specification. This approach will allow control of parameters unique to the new fuel and separate from Jet A/A-1.

What's the Future for Aviation Fuels?

While we cannot predict the future for aviation fuels, FAA is an active participant with the industry as this future unfolds. Here's how.

Research. The Aviation Fuel and Engine Test Facility (AFETF) at the FAA Technical Center in Atlantic City, New Jersey, has conducted research on aviation gasoline for many years. The Center has performed full-scale engine testing and laboratory analyses to evaluate:

- The interaction of advanced fuel chemical components and additives with existing fuels and with each other
- The performance and properties of alternative and experimental fuels, such as ethanol and biofuels
- The octane performance of unleaded avgas

Standard Specifications. As the primary aviation fuel standards organization in the U.S., ASTM International has been active in the aviation fuel arena. Currently, task forces are working on:

- Developing new standard specifications for unleaded avgas
- Introducing 87 and 91 grades into the 82UL standard specification (D6227)
- Developing an aviation grade ethanol standard specification
- Introducing synthetic turbine fuels into D1655
- Preparing for the future introduction of bio-derived jet fuels

Avgas Lead Emissions. FAA's Office of Environment and Energy is working closely with the Environmental Protection Agency (EPA) to evaluate the impact of lead emissions from aircraft engines on the environment. EPA recently issued a new standard for lead emissions in the National Ambient Air Quality Standard (NAAQS). This new standard will require a coordinated response from the aviation industry. FAA is already working with groups, such as the General Aviation Manufacturers Association (GAMA), Aircraft Owners and Pilots Association (AOPA), Experimental Aircraft Association (EAA), the Coordinating Research Council (CRC), and ASTM International to address future fuels for the reciprocating engine fleet.

While we cannot predict the future for aviation fuels, FAA will be an active participant with the industry as this future unfolds.

While we cannot predict the future for aviation fuels, we can be certain that market forces, environmental concerns, and availability issues will drive changes. We can also be certain that FAA will be an active participant in meeting the challenges ahead.

Mark S. Orr is an aviation safety engineer in the FAA Small Airplane Directorate's Programs and Procedures Branch. Dave Atwood from the Aviation Fuel and Engine Test Facility (AFETF) at the FAA Technical Center in Atlantic City, New Jersey, and Mark Rumizen from the FAA Engine and Propeller Directorate contributed to this article.

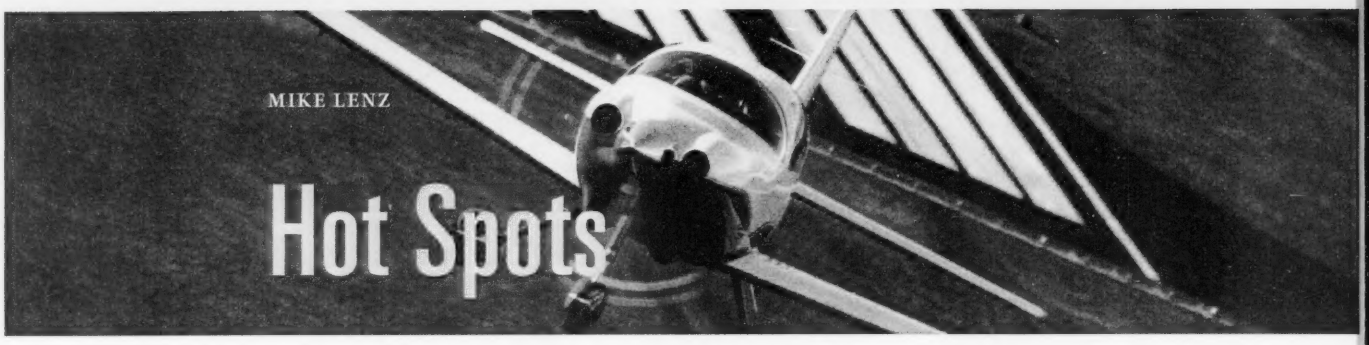
For More Information

The Aviation Fuel and Engine Test Facility (AFETF) at the FAA Technical Center in Atlantic City, New Jersey, has provided data critical to understanding the behavior and performance of different fuel blends and experimental fuels in reciprocating aircraft engines. These data are being used by FAA, the Coordinating Research Council (CRC), ASTM International, and General Aviation Manufacturers Association (GAMA) to safely introduce future fuels.

To learn more about aviation fuels research, check out FAA reports available from the Technical Center library at:
http://actlibrary.tc.faa.gov/.

For more on EPA standards, go to:
http://epa.gov/air/lead/actions.html.

See Peter Rouse's article "Why Does My Airplane Smell Like It Has Been Drinking?" about the hazards of using autogas with ethanol in aircraft in the May/June 2009 issue of *FAA Aviation News* and the May/June 2009 news item (page 2) on "FAA Tech Center Evaluates Future Fuels."



MIKE LENZ

Hot Spots

Know Your Taxi Limitations

"A man's got to know his limitations." This famous line from the Dirty Harry film "Magnum Force," starring Clint Eastwood, (a pilot, by the way) can apply to aviation, and specifically to safe taxiing.

The next time you receive a taxi clearance, think about any potential hot spots and limitations along that route and try to personalize the hazard areas that could apply to you while taxiing.

Prevent Runway Incursions
Stop, Look, and Listen

Stop

- If uncertain about your position (and not on a runway or otherwise creating a hazard), stop and contact ATC.
- If you are on a runway without approval, exit the runway.
- Stop and contact ATC if uncertain about an instruction to cross a runway.

Look

Before taxiing –

- Before starting the engine, study the airport diagram—download at www.naco.faa.gov—and keep a copy in the cockpit.
- Pay careful attention to airfield signs and markings.
- Complete checklists, navigation equipment programming, and other preflight activities prior to taxiing or immediately before departure as appropriate.

While taxiing –

- Practice heads-up and eyes-out.
- Avoid distracting tasks; focus on your route.

Listen

- Listen carefully to, read back, and write down all air traffic instructions.
- Ensure you have ATC approval before crossing or using any runway.
- "Taxi to" does not allow you to enter the assigned runway.

Visualizing these areas in advance can go a long way to keep you safe.

Let's look at an example. Let's say you're at Daytona Beach International Airport (DAB) and you're starting out from the general aviation parking area. Ground control instructs you to taxi to Runway 7R via Taxiway Whiskey (W) and Sierra (S).

Where are the hot spots on this taxi route? (See figure 1.) Three come to mind:

1. The first hot spot along Taxiway W is the parallel runway, 7L, which your taxi instructions authorize that you may cross, absent a hold-short restriction. Yet, controllers are human and can make mistakes. What if the ground controller did not coordinate your crossing with the other controller responsible for landings and departures on Runway 7L? This is considered a "high energy" part of the runway because the middle two-thirds of a runway is where landing and departing aircraft are often traveling too fast to stop safely or take evasive action.

   Also, aircraft have been known to land on the wrong parallel runway, and this is a possibility at DAB. Some pilots lose communications, or become disoriented, and land without contacting ATC. It's rare, but happens several times each year and can easily lead to a runway incursion.

   When approaching Runway 7L, check for traffic landing or departing from either direction before proceeding and, if the frequency is not crowded, announce you're crossing Runway 7L.

   And if you aren't absolutely sure, call ground control before crossing 7L.

2. As you continue your taxi down Whiskey, what if you mistakenly turned left on Sierra, instead of right? You could inadvertently cross Runway 16/34. This is not good, especially since Sierra crosses Runway 16/34 near another high-energy part of a

runway. Dirty Harry would ask, "What's my limitation?"

The answer: Runway 16/34. If you see you're about to cross, because you suddenly notice a hold line or a runway sign, you have probably turned the wrong way. In this case, stop, unless you are already on the runway, in which case you should exit the runway expeditiously and call Ground Control for further instructions.

3. The third hot spot is at the point where you could miss the right turn from Taxiway W to S. Your limitation is—you guessed it—Runway 7R. If you're about to cross 7R while still on Taxiway W, you've inadvertently passed up Taxiway S. Remember: When cleared to a runway, unless you have also received a "taxi into position and hold" or a takeoff clearance, you are not authorized to enter that runway.

It's easy to make up scenarios like the ones described. The only problem is these, and too many others like them, are real. In fact, the third hot-spot scenario described was from an actual Category A runway incursion. (Category A events are runway incursions in which separation decreases and participants take extreme action to avoid a collision or a collision actually occurs.)

In this DAB event, a student pilot did stray onto Runway 7R, and a departing Cessna 172 saw the student enter the runway "and believed a collision was imminent if he rotated (the pilot had reached 55 knots) and instead tried to stop..." The student pilot stopped as well and the aircraft missed each other by 10 feet.

During your next taxi, visualize the hot spots and "know your limitations." You can also make it interesting by challenging another crewmember, when available, to select the hot spots and limitations while you do the same. Then, compare notes. Did you each come up with the same ones? Did one crewmember miss one? If you missed one, buy the other pilot a cup of coffee, because you owe him or her at least that much.

Mike Lenz is a program analyst in Flight Standards Service's General Aviation and Commercial Division and also a pilot.

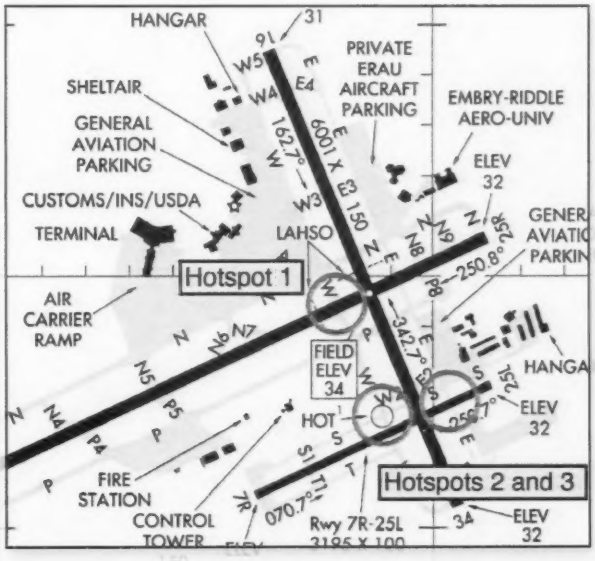


Figure 1. Daytona Beach International Airport

TOM HOFFMANN

Blinded by the Light

A Look at Cockpit Laser Illumination Events

It's one of those rare summer nights. The sky is endlessly clear and smooth as glass. Below you, the endless patchwork of tiny yellow, white, and red lights sparkle like jewels against the black velvet darkness. You treasure this moment of freedom, flying miles above all the traffic, noise, and chaos; your only companions the familiar drone of your 172's engine and the warm glow of your instrument panel. Reducing power on final, you marvel at the perfect uniformity of the runway lights ahead as you prepare to call an end to this memorable flight.

Then, it happens. A blinding green light envelops the cockpit and startles you—as if someone sounded an air horn inches from your ear. What had been a smooth controlled approach becomes an erratic, over-controlled struggle to maintain airspeed and glide path. As your eyesight slowly returns to normal, it dawns on you—you've been "lased."

A lasing event, otherwise known as a laser illumination event, is becoming a more familiar occurrence for pilots. In 2008, there were 955 reported laser events across the United States, more than triple the number in 2005. Does this increase mean you should rush out and get a set of the latest anti-laser goggles? Not likely. Nor does it mean you'll need to equip your aircraft with photon-torpedo technology to retaliate against enemy fire from reckless laser pointer users. Yet, there are some key points to remember to help keep you safe during a laser illumination event.

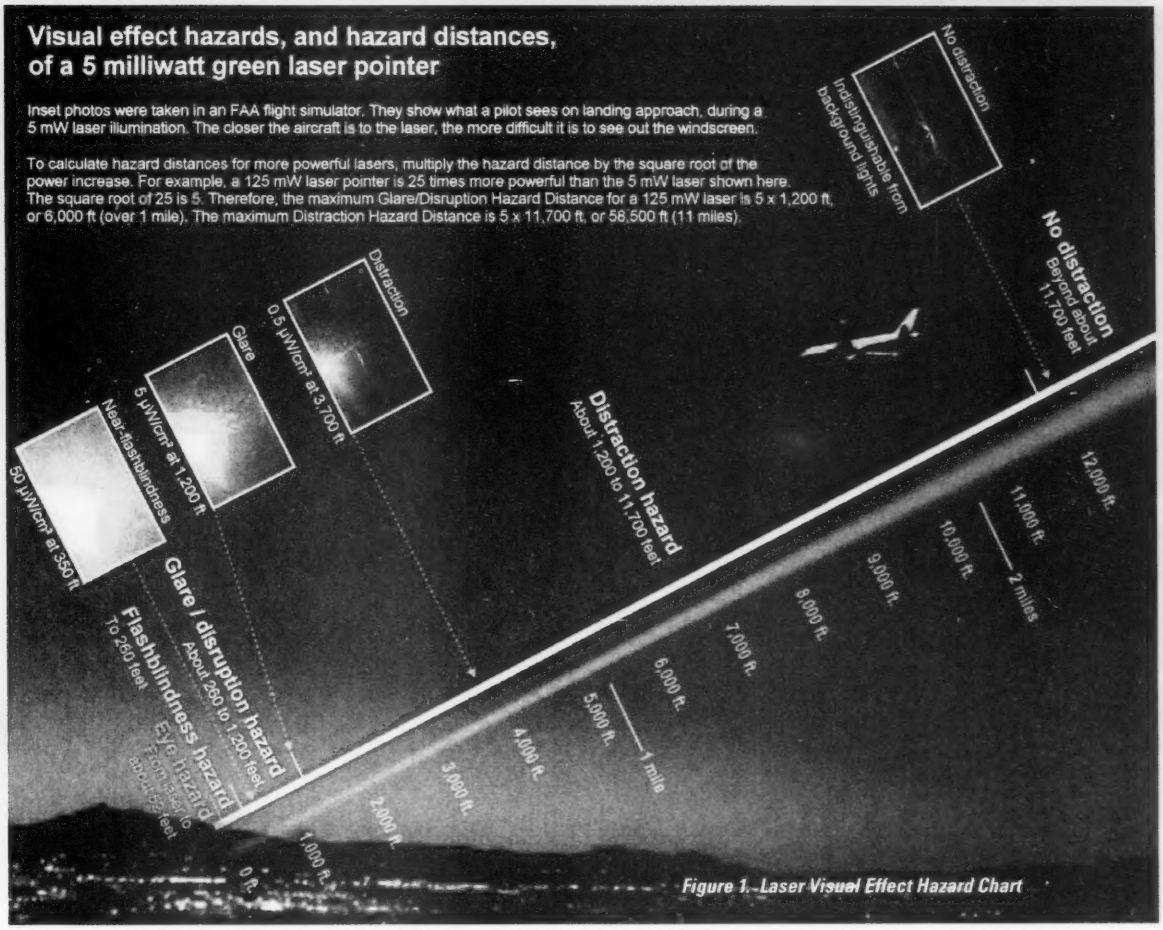
Lasers 101

We often overlook the value laser technology can have in everyday life. It plays a vital role in your ability to do many routine tasks, such as watch DVD movies, secure your home from intruders, improve your eyesight, or even to get rid of that unsightly butterfly tattoo. Despite their various practical and scientific uses, lasers can be dangerous and improper use can pose a serious threat to aviation safety.

The word "laser" actually contains its own definition. It is an acronym for Light Amplification by Stimulated Emission of Radiation. Simply stated, a laser is an optical device that produces a highly concentrated beam of single-color light. A special optical amplification process known as stimulated emission transforms energy inside the laser into synchronized, narrow light waves within a low-divergence beam. In contrast, an average flashlight or light bulb emits multiple-wavelength light in several directions and becomes greatly diluted.

Laser light show over Miami during 2007 Super Bowl

Photos and Art courtesy of www.lasernet.com


Visual effect hazards, and hazard distances, of a 5 milliwatt green laser pointer
Inset photos were taken in an FAA flight simulator. They show what a pilot sees on landing approach, during a 5 mW laser illumination. The closer the aircraft is to the laser, the more difficult it is to see out the windscreen.
To calculate hazard distances for more powerful lasers, multiply the hazard distance by the square root of the power increase. For example, a 125 mW laser pointer is 25 times more powerful than the 5 mW laser shown here. The square root of 25 is 5. Therefore, the maximum Glare/Disruption Hazard Distance for a 125 mW laser is 5 x 1,200 ft, or 6,000 ft (over 1 mile). The maximum Distraction Hazard Distance is 5 x 11,700 ft, or 58,500 ft (11 miles).
No distraction
Indistinguishable from background lights
No distraction
Beyond about 11,700 feet
Distraction
0.5 µW/cm² at 3,700 ft
Glare
5 µW/cm² at 1,200 ft
Near-flashblindness
50 µW/cm² at 350 ft
Distraction hazard
About 1,200 to 11,700 feet
Glare / disruption hazard
About 260 to 1,200 feet
Flashblindness hazard
To 260 feet
Eye hazard
From about 60 to about 85 feet
12,000 ft.
11,000 ft.
10,000 ft.
2 miles
9,000 ft.
8,000 ft.
7,000 ft.
6,000 ft.
5,000 ft.
1 mile
4,000 ft.
3,000 ft.
2,000 ft.
1,000 ft.
0 ft.
Figure 1. Laser Visual Effect Hazard Chart

Lasers first gained attention in the aviation community in the 1990s, when several pilots reported incidents of illumination near public amusement events or attractions. This prompted FAA to provide greater support for outdoor laser operations in the National Airspace System (NAS) by establishing flight-safe exposure limits for lasers near airports. These standards successfully decreased the number of reported laser illumination events, and ensured pilots would be protected from lasers that could cause ocular damage.

"Once better guidelines were established, reported incidents with organized outdoor laser events declined," states FAA Air Traffic Control Specialist and Outdoor Laser Operations Lead Kelly Neubecker. "Although providing information is voluntary, organized laser operators have a vested interest in maintaining their displays responsibly and actively seek the proper approval."

To validate the effectiveness of these new guidelines, FAA began closer monitoring of laser illumination events and saw a decline for several more years. Then, something peculiar happened. In late 2004, an unusual spike in incidents occurred that was linked to a new source of laser danger—handheld laser pointers. The correlation was clear as it was about this same time when green laser pointers, generally used by presenters or by astronomers to point out celestial objects, became inexpensive and widely available. Also of concern was the color of these pointers, as green lasers produce a beam near the eye's peak sensitivity, which means that they are perceived as many times brighter than a similarly powered red laser.

The key to a safe flying environment is to keep both pilots and laser operators informed and educated.

"Although the power produced in most laser pointers is usually not enough to cause physical eye damage, the operational problems caused by distraction or the resulting 'visual effects' can have serious consequences, especially during a critical phase of flight," says FAA Vision Research Team Coordinator Dr. Van Nakagawara.

TOM HOFFMANN

Blinded by the Light

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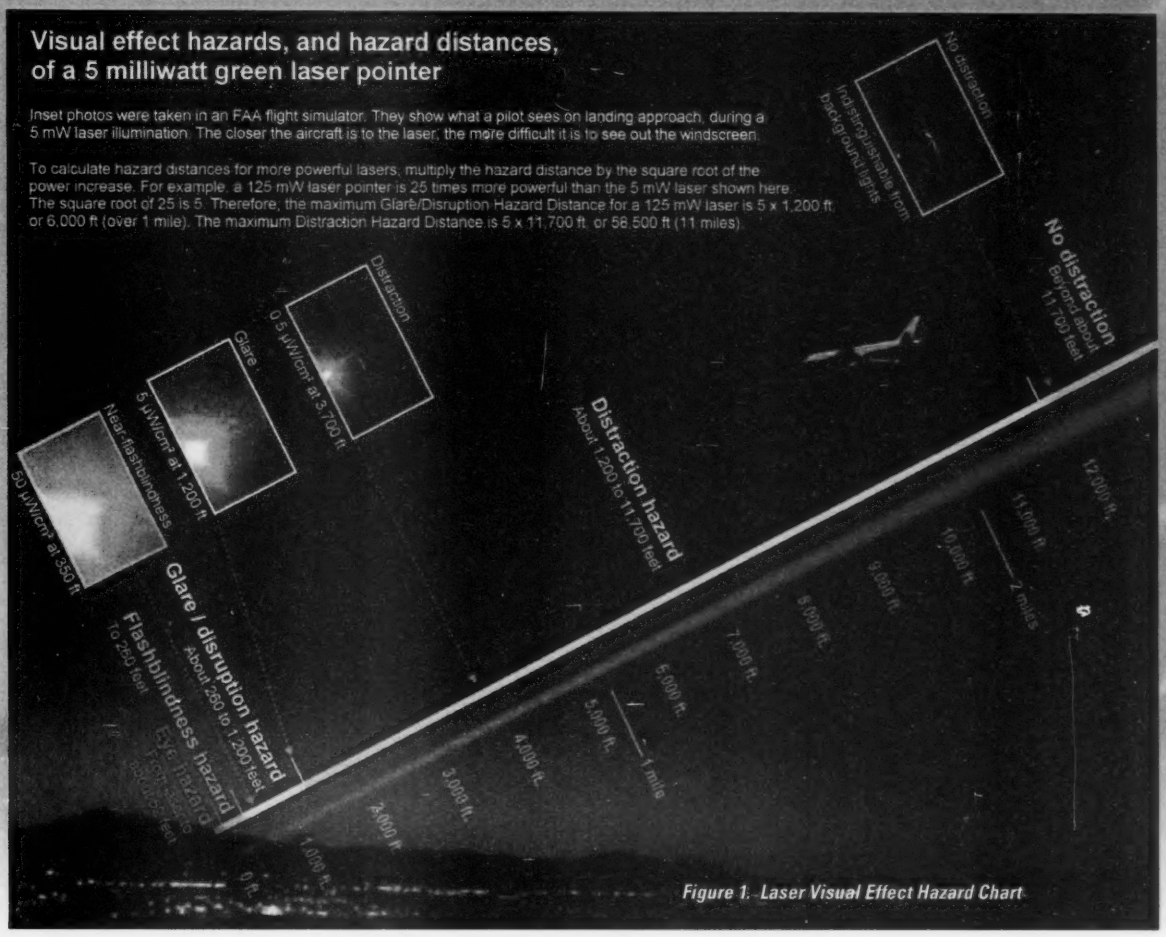
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No distraction
Beyond about 11,700 feet
Distraction hazard
About 1,200 to 11,700 feet
Glare / disruption hazard
About 250 to 1,200 feet
Flashblindness hazard
To 250 feet
Eye hazard
From 1,000 to about 0 feet
12,000 ft.
11,000 ft.
10,000 ft.
9,000 ft.
8,000 ft.
7,000 ft.
6,000 ft.
5,000 ft.
4,000 ft.
3,000 ft.
2,000 ft.
1,000 ft.
0 ft.
2 miles
1 mile
5,000 ft.

Figure 1. Laser Visual Effect Hazard Chart

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To validate the effectiveness of these new guidelines, FAA began closer monitoring of laser illumination events and saw a decline for several more years. Then, something peculiar happened. In late 2004, an unusual spike in incidents occurred that was linked to a new source of laser danger—handheld laser pointers. The correlation was clear as it was about this same time when green laser pointers, generally used by presenters or by astronomers to point out celestial objects, became inexpensive and widely available. Also of concern was the color of these pointers, as green lasers produce a beam near the eye's peak sensitivity, which means that they are perceived as many times brighter than a similarly powered red laser.

The key to a safe flying environment is to keep both pilots and laser operators informed and educated.

"Although the power produced in most laser pointers is usually not enough to cause physical eye damage, the operational problems caused by distraction or the resulting 'visual effects' can have serious consequences, especially during a critical phase of flight," says FAA Vision Research Team Coordinator Dr. Van Nakagawara.

Operational Concerns Put to the Test

FAA performed studies at its test facility in Oklahoma City and validated the operational concerns of a laser attack. The studies exposed 34 pilot test subjects to varying intensities of laser illumination while performing approach, landing, and takeoff maneuvers in a full-motion aircraft simulator. While illuminations at a lower intensity were regarded as more or less a nuisance, those at a higher intensity resulted in many visual and operational problems for the pilots. Figure 1 shows photographs of the different levels of visual effect hazards, similar to what these pilots witnessed during the simulator test.

If you encounter a laser illumination event during flight, remember to Aviate, Navigate and Communicate.

These effects during laser events have also been documented in pilot reports, where aviators have described losing sight of the runway, flaring too early, or executing a missed approach.

These events can be much more challenging for a general aviation pilot who often flies slower, lower, and has no other pilot to take the controls. Even more at risk are helicopter crews, due to their close ground proximity and a helicopter's tendency to present a more stationary target by hovering.

The three visual effects that could impact pilot operations during a laser illumination are:

- Flash blindness – A temporary visual interference effect that persists after being "lased," similar to a bright camera flash.
- Afterimage – A distracting shadow image left in the visual field after exposure to a bright light that can last for several minutes.
- Glare – An object in a person's field of vision being obscured due to a bright light source near the same line of sight.

"The severity of these visual effects can vary greatly among pilots," says Dr. Nakagawara. "Factors such as age and existing eye condition can prolong the recovery time for normal vision after a laser event. Some pilots can even experience a temporary total loss of vision."

Dr. Nakagawara and his team at the Civil Aerospace Medical Institute (CAMI) in Oklahoma City, keep a close watch on laser events nationwide and report regularly on any notable trends. Dr. Nakagawara also participates in several industry and government groups, including the American National Standards Institute (ANSI) and the SAE G10T (Laser Safety Hazards) Subcommittee, the latter of which he chairs. Dr. Nakagawara's experience with these groups helps keep the Vision Research Team abreast of changes and proactive with new developments in the laser industry.

Integral to the success of the Vision Research Team is the data it receives from various laser-incident reporting mechanisms. Before Advisory Circular (AC) 70-2, which standardized the reporting procedure for laser events, reports were often vague with inconsistent findings. Since the AC's issuance, however, more than 2,600 laser events have been reported to ATC and FAA System Operations, a 270 percent annual increase since 2005. It is unclear whether these numbers reflect a genuine increase or a heightened awareness of the need to report these events.

According to FAA Operations and Air Traffic Control Specialist Cornelius Moore, it's both. "Since AC 70-2, the number of reports has increased dramatically," says Moore, whose responsibilities include providing a weekly laser-event report to several government agencies and stakeholders, including FAA's Vision Research Team. "In conjunction with the AC, the growing popularity of high-powered, low-cost laser pointers in the market makes laser events an even greater possibility."

How Do I Report a Laser Incident?

In the air: Report on assigned (or appropriate) frequency

On the ground: Refer to AC 70-2. Fax the form to (202)-267-5289 or e-mail your information to

Items to report:

- Name and phone number
- Date and time
- Call sign, tail number, and type
- Location
- Aircraft altitude and heading
- Laser color
- Direction and distance of laser
- Cockpit illuminated?
- Injuries?

Pointers - What if I Get "Lased?"

If you encounter a laser illumination event during flight, here are a few pointers:

- ANC - Remember to Aviate, Navigate, and Communicate.
- Alert a crewmember – If you're flying with another pilot, advise him or her of the laser and determine if the other pilot is safe to assume control of the aircraft.
- Interrupt the light – Use a clipboard, visor, or your hand to block the light if possible. Sometimes you can maneuver and use the aircraft to block the light.
- Turn up the cockpit lights – Light-adapted eyes are less prone to the effects of a laser.
- Advise ATC or broadcast on appropriate UNICOM frequency – Be sure to include aircraft call sign and type; altitude and heading; the color, direction, and location of the laser; the length of exposure; and any injuries sustained.
- Resist the urge to rub your eyes - This can irritate the eyes more and cause tearing or a corneal abrasion.
- If you are concerned or if you feel you have suffered any eye damage - Have your eyes examined.

A pilot is typically the last line of defense in preventing a laser illumination from becoming a serious accident. "The key to successful mitigation of future events is to report them as quickly and accurately as possible," states Moore, who also has an active role in improving FAA's data collection efforts for laser events. Among those developments are a new e-mail address (LaserReports@faa.gov), a fax number (202-267-5289), and soon a Web-based form to facilitate input for pilots and ATC.

"Despite all the methods of reporting, the best way for us to get information is for pilots to report the incident directly to ATC," adds Moore. "This allows us to take immediate action and increases the likelihood of local law enforcement making a speedy apprehension."

Reporting a laser illumination to ATC also has other benefits, as it triggers a general caution warning broadcast on all appropriate frequencies every five minutes for 20 minutes and is included in ATIS broadcasts for one hour after the report. The following is an example of a laser-related ATIS report:

UNAUTHORIZED LASER ILLUMINATION EVENT, AT 0100z, 8 MILE FINAL RUNWAY 18R AT 3,000 FEET, GREEN LASER FROM THE SOUTHWEST.

The Future of Lasers

There are many exciting prospects for laser technology, including deep-space data communications and computers that can process at the speed of light. Despite the dangers of "rogue" unauthorized users, lasers may hold the key to a whole new level of aviation safety. Lasers are already being successfully used to warn aircraft that violate the DC Special Flight Rules Area (SFRA) and could be used as a bird-strike deterrent, as well as to prevent runway incursions.

In 2008, there were 955 reported laser events across the U.S., more than triple the number in 2005.

The key to a safe flying environment is to keep both pilots and laser operators informed and educated. Operators need to understand the dangers caused by careless actions with a laser. And, for pilots, knowing how to recognize, react, and report a laser event is the best way to keep the skies safe now and in the future.

Tom Hoffmann is associate editor of FAA Aviation News. He is a private pilot and holds an Airframe and Powerplant certificate.

For More Information

To learn more about safe practices for pilots and laser pointer users
www.laserpointersafety.com

Advisory Circular 70-2 – Reporting of Laser Illumination of Aircraft
http://rgl.faa.gov/, click Advisory Circulars, then search for 70-2

Office of Aerospace Medicine – Laser Illumination of Aircraft by Geographical Location for a 3-year Period (2004-2006) – June 2008
http://www.faa.gov/library/reports/medical/oamtechreports/2000s/media/200814.pdf

And, the Winner Is...

Annual GA Awards

Recognize Dedicated Safety Advocates

The nominations are in and the winners selected for the 2009 FAA Safety Team (FAASTeam) Representative, Certificated Flight Instructor (CFI), Aviation Maintenance Technician (AMT), and Avionics Technician of the year. "These awards highlight the important role played by these individuals in promoting aviation education and flight safety," says JoAnn Hill, General Aviation Awards Committee chairperson. "The awards program sponsors are pleased that these outstanding aviation professionals will receive the recognition they so richly deserve before their peers in Oshkosh."

The winners will receive their national awards in July during a "Theater in the Woods" program at EAA AirVenture®.

The General Aviation Awards program is a cooperative effort between FAA and more than a dozen industry sponsors. The selection process begins with local FAASTeam managers at Flight Standards District Offices (FSDO) and then moves on to the eight regional Flight Standards Service offices. Panels of aviation professionals from within those four fields select national winners from the pool of regional winners.

Support and sponsorship for the General Aviation Awards program is provided by the FAA, Women in Aviation International (WAI), the Society of Aviation and Flight Educators (SAFE), the Professional Aviation Maintenance Association (PAMA), the National Business Aviation Association (NBAA), the National Association of State Aviation Officials (NASAO), the National Air Transportation Association (NATA), the National Association of Flight Instructors (NAFI), the Helicopter Association International (HAI), the General Aviation Manufacturers Association (GAMA), EAA, the Aircraft Maintenance Technology Society (AMT Society), the Aircraft Owners and Pilots Association (AOPA), the Aeronautical Repair Station Association (ARSA), and Aircraft Electronics Association (AEA). Information about the General Aviation Awards Program, as well as applications for next year's awards, is available on the Web sites of sponsoring organizations and at www.faasafety.gov/.

Here are this year's winners.

We would like to acknowledge all the regional winners who were nominated for the national awards.

For FAASTeam Representative: Alan C. Davis (Northwest Mountain - CO), Ellen Marie Nobles-Harris (Eastern - DE), Dennis L. Bowdoin (Great Lakes - MI), Richard Lawrence Martindell (Western Pacific - CA), Harry Narvaez-Munet (Southern - PR), and William Alexander Hopper (Central - MO).

For CFI: James Lawrence Camden (Northwest Mountain - CO), Charles H. Ebbecke (Eastern - NJ), John Lewis (Great Lakes - MI), Charles Ray McGill (Western Pacific - CA), and Ken Wittekiend (Southwest - TX).

For AMT: Jack Duane Bell (Northwest Mountain - CO), Stephen Stodolski (Eastern - CT), Michael P. Dougherty (Western Pacific - HI), and Keith Evan Hetrick (Central - KS).

For Avionics Technician: Ronald Mark Wright (Great Lakes - IN), Michael George Phillips (Western Pacific - AZ), and Klarann Voegle (Central - IL).

2009 FAA Safety Team Representative of the Year

Kent Lewis of Keller, Texas, exemplifies a high standard of professionalism in the field of aviation safety education. He serves as a FAASTeam lead representative in the Fort Worth area where he conducts safety seminars, maintains safety Web sites, and is a subject matter expert for human factors and safety management systems (SMS) applications for general aviation.

Lewis has been in love with aviation since 1969 when, at the age of nine, he was a fence-line observer at Love Field, Texas. After a distinguished 20-year U.S. Marine Corps career in aviation, he began a civilian flying career with Delta Air Lines, then Houston Helicopters. He holds an airline transport pilot (ATP) certificate with an airplane multi-engine land (AMEL) rating as well as commercial privileges with airplane single-engine land (ASEL), rotorcraft-helicopter, and helicopter instrument ratings. His flight instructor certificate (CFI) extends to airplane single engine, multi-engine, and instrument.

Lewis created the Signal Charlie (http://www.SignalCharlie.net) wikispace, a Web-based aviation safety information resource, which is dedicated to the continuous improvement of aerospace safety. He also is the owner of Fort Worth Aviation Safety Program Google group (http://groups.google.com/group/fwasp). The site was developed to discuss and teach personal aviation safety management and to promote an informed learning and reporting safety culture. He serves as a liaison for helicopter emergency medical services (HEMS) issues and facilitates the FAA Southwest Region Runway Safety Summit as well as WINGS seminars. Also, he has developed aviation heritage initiatives and assists with Young Eagles programs in his local area.

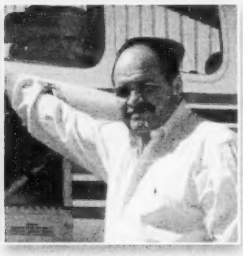
2009 National Certificated Flight Instructor of the Year

Arlynn McMahon of Versailles, Kentucky, specializes in training other certificated flight instructor candidates. Growing up, she was the kid in pigtails sweeping hangar floors and washing airplanes at Lexington-Blue Grass Airport (KLEX). On her 16th birthday, she soloed; when she turned 17, she earned her private pilot certificate. Today, she holds an ATP certificate with an AMEL rating as well as commercial privileges with ASEL rating.

More than three decades later, McMahon is still at LEX as the chief flight instructor at Aero-Tech (www.AeroTech.net), a part 141/part 61 flight school. With more than 9,000 hours of dual instruction to her credit, she has continuously updated her skills by adding not only airplane single engine, multi-engine, instrument, ground instructor, and Gold Seal to her original flight instructor certificate, but also by completing transition training in glass cockpits and light-sport aircraft. She also serves as a FAASTeam representative with the Louisville FSDO and holds a Master CFI designation.

Several years ago, McMahon discovered a love of and a talent for writing when she wrote for AOPA's *Flight School Business*. Since then, she has been published in numerous aviation journals and magazines and writes a monthly column in *Aviation for Women*. Recently, Aviation Supplies and Academics (ASA) published her book entitled *Train Like You Fly: A Flight Instructor's Guide to Scenario-Based Training*. Her article on page 8 of this issue is based on her book. She also provided editorial assistance for the newly revised *FAA Aviation Instructor's Handbook*.

2009 Aviation Maintenance Technician of the Year



Alfred "Lucky" Louque of Chatfield, Texas, is the general manager for Air Salvage of Dallas (www.ASOD.com), which is located at the Lancaster Airport, Texas. Growing up in Louisiana, Louque has loved airplanes since childhood. Whenever he heard an airplane, he stopped whatever he was doing to gaze skyward. He had the opportunity to work for an aunt and uncle at Air Salvage and jumped at the chance.

Almost four decades later, Louque holds an A&P certificate, an inspection authorization (IA), and a private pilot certificate with ASEL and AMEL ratings. For the past 15 years, he has served as an FAA-designated maintenance examiner (DME) as well as a designated airworthiness representative (DAR). He is also a FAASTeam lead representative. He enjoys lecturing, but also authors articles for the FAASTeam newsletter "Nuts & Bolts," as well as for local EAA chapter newsletters.

Aircraft accident investigation has been a large part of his work for the past three decades. In that capacity, he teaches formal classes on the art and science of accident investigation. He also works with FAA, NTSB, and across the aviation industry on aircraft accident investigations and reconstructions, providing assistance with coordinating and scheduling accident investigations, as well as aircraft component studies, engine teardowns, and test runs. Because aviation safety is extremely important to him, he has done remedial training for the FAA and presented aviation safety seminars for pilots and mechanics for 20 years.

2009 Avionics Technician of the Year

Jerry Stooksbury lives in Fort Collins, Colorado. The avionics industry was a natural fit for this engineer/flight instructor who loves to fly and teach others to fly. He enjoys consulting with pilots to help them determine the right set of products and technologies for their type of flying and their budget.

A native of Tennessee, Stooksbury has been involved in aviation since he was a teenager. First soloing in 1978, he has since earned commercial pilot certification along with instrument, ASEL, and AMEL ratings. He has been an active flight instructor for more than 20 years with airplane single-engine and instrument ratings. He is also a mission pilot with the Colorado Wing of Civil Air Patrol.

His interest in electronics started at about the same time as his interest in aviation. Stooksbury obtained a FCC 2nd Class Radiotelephone Operators permit and an Amateur Radio Operators license in the mid 1970s. After graduating with high honors from the University of Tennessee in 1983 with a degree in electrical engineering, he moved to Colorado to work for Hewlett-Packard as a systems engineer. In the mid 1990s, he left HP to work with Garmin as its technical marketing manager. In 2004, he founded Avionics Specialists, LLC, which employs five people who specialize in avionics upgrades for piston singles and light/medium piston twins.

Stooksbury is also the cofounder of AirportView.net, a Web site that provides real-time weather camera and AWOS information for airports in Colorado and the Rocky Mountain region (www.AirportView.net). Stooksbury and his team are working to expand this network and the depth of information it provides to pilots.

Flight Forum

Byline Updated

In "ABC of ADs" in our May/June 2009 issue the byline information at the end of the article omitted the fact that one of the article's authors, Tausif Butt, is also an A&P aircraft mechanic and private pilot.

Static Error

According to Title 14 of the Code of Federal Regulations (14 CFR) section 91.411, "each static pressure system, each altimeter instrument, and each automatic pressure altitude reporting system" has to be tested and inspected within the preceding 24 calendar months. Therefore the AV1ATE chart on page 16 in the May/June 2009 issue should not list pitot under the second A.

—Ken Cawrse
Via telephone

Thanks for pointing that out. Although the system is occasionally referred to as the pitot-static system on some checklists, the inspection and test requirements in 14 CFR 91.411 do not include a test of the pitot system. The phrase probably originated because some aircraft designs locate the static port on the aircraft pitot. Further information on the required static system test can be found in 14 CFR 43 Appendix E.

Number Slippage

On page 3 of the May/June 2009 issue under "FAA Issues Cessna Seat SAFO," it references that the inflight seat slippage Safety Alert for Operators (SAFO) applies to Cessna 310 airplanes. The 310 reference should be for the Cessna 303. A review of the AD 87-20-03 R2 and the SAFO confirms this. For your information, the 310 series airplanes are not equipped with the seat tracks referred to in the aforementioned documents.

Congratulations on an outstanding magazine. It should be required reading for all pilots.

—Fred Holstein
Via the Internet

Thanks for bringing this to our attention. It was actually a typo. The Cessna 303 is covered by this AD, but it was the 210, not the 310, that we had intended to reference.

More Concerns about ELT Disposal

The item on emergency locator transmitter (ELT) disposal in the May/June 2009 issue did not go quite far enough. The article placed lots of emphasis on the activation hazard associated with ELT disposal (which, don't get me wrong, is very real), but placed far too little emphasis on the environmental issues of ELT disposal. First, almost all ELTs contain large amounts of lead in them, and consequently they truly are an environmental hazard in a landfill. Second, the batteries in ELTs often contain mercury and nickel. Further, IF they are lithium batteries, they also pose a "fire-bomb-like" behavior if exposed to water and can start an unextinguishable fire that can only be allowed to burn itself out. While this would be of short duration (a minute or so), it can set the entire landfill on fire. My point is that ELTs need to be treated as hazardous waste and disposed of accordingly, and not just because they can be accidentally activated.

—Barry Watzman
Via the Internet

We should also add that you should contact your local waste management facility for the disposal regulations in your area. Thanks for giving us more insight on this issue.

FAA Aviation News welcomes comments. We may edit letters for style and/or length. If we have more than one letter on the same topic, we will select one representative letter to publish. Because of our publishing schedules, responses may not appear for several issues. We do not print anonymous letters, but we do withhold names or send personal replies upon request. Readers are reminded that questions dealing with immediate FAA operational issues should contact their local Flight Standards District Office or Air Traffic facility. Send letters to: Editor, FAA Aviation News, AFS-805, 800 Independence Avenue, SW, Washington, DC 20591, or FAX them to (202) 267-9463, or e-mail them to AviationNews@faa.gov.

SUSAN PARSON

Editor's Runway

Flavor of the Month

Like many eateries, my favorite ice cream shop advertises a "flavor of the month." You can still get vanilla, but the featured flavor is likely to be more exotic. It is also likely that its stay will be as short as its starring role in the display case.

Risk management is simply the habit of identifying possible problems, and then taking "pilot-safe" actions that will guarantee a plain vanilla outcome.

That reality is reflected in the well-worn cliché that dismisses any new idea as the transient "flavor of the month." It's true that some ideas are as short-lived as the market for fudge-ripple praline strawberry shortcake (yes, I did make that up), but others have the staying power to become classics, like vanilla.

That applies to aviation ideas as well. Skeptics predict that the current focus on risk management is just "flavor of the month," but I predict that it's here to stay. In fact, aviation without risk management should be as unimaginable as an ice cream shop without vanilla. Here's why.

In Defense of Plain Vanilla

The typical language used to discuss risk management can be as boring as, well, plain vanilla. If you'll indulge the metaphor for a few more sentences, though, consider this fact: Isn't plain vanilla exactly what most of us are looking for when we fly? In ice cream shops, we might occasionally be adventurous enough to take the flavor of the month for a taste test, but we more often practice risk management by opting for a flavor known to be "palate-safe."

It's the same in flying. Risk management is simply the habit of identifying possible problems, and then taking "pilot-safe" actions that will guarantee a plain vanilla outcome.

A solid risk management habit is also key to safely sampling the aviation smorgasbord.

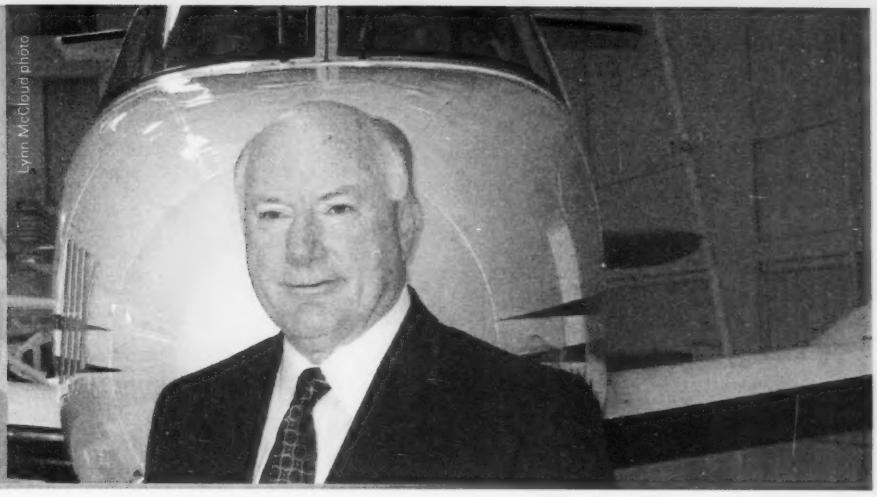
As for process, risk management can be as complicated, or as simple, as you want to make it. Some people like the quantitative approach, in which the pilot assigns numerical values to each individual hazard. I've seen risk management tools that go on for pages. My personal preference is PAVE, which calls for a simple, but systematic, assessment of risk factors associated with **P**ilot, **A**ircraft, en**V**ironment, and **E**xternal pressures. The point is to find something that works for you, and to use it consistently.

Flavor-of-the-Month Flying

Although you certainly want all your flights to have plain vanilla outcomes, let me close by stressing that a solid risk management habit is also key to safely sampling the aviation smorgasbord. Most of my personal flying involves plain-vanilla flying in normal-category aircraft. To the extent that my budget allows, though, I indulge my flavor of the month craving for unusual attitudes by zooming around the Arizona desert in an Extra EA300L. The flying is complicated, but the risk management process is plain-vanilla simple: I fly with a highly-experienced instructor **P**ilot, use an **A**ircraft built for this kind of activity, enjoy the clear and dry Southwestern flying en**V**ironment, and leave the **E**xternal pressures on the ground. It's the key to... safe flights and happy landings!

Susan Parson is a special assistant in Flight Standards Service's General Aviation and Commercial Division. She is an active general aviation pilot and flight instructor.

LYNN MCCLOUD



FAA Faces

Keeping Current with Euel Henry and the FAA Flight Program

The FAA has a host of regulations to assure that airmen and operators in the National Airspace System meet certain safety standards. Yet, along the lines of "physician, heal thyself," how does FAA keep its aviation safety inspectors qualified, proficient, and current?

The answer: The FAA Flight Program, with its 15 employees and nine Beech *King Airs* based at Fort Worth Alliance Airport.

"Our inspectors oversee pilots and organizations that operate in the National Airspace System (NAS)," says Flight Program Manager Euel Henry. "It's essential that our inspectors be current and fly today's technologies in today's airspace."

An operations inspector's involvement with the Flight Program begins before even starting on the job with a pre-employment flight check. With the influx of FAA inspectors, Henry's team has been giving about 40 flight checks a month. There are some 1,200 pilots on the Flight Standards Service roster who are required to maintain commercial or ATP standards and they are rated in a wide range of aircraft—from long-range airliners, to helicopters, to gliders. "It can get complicated," Henry continues, "with that many pilots and the range of aircraft."

An inspector who oversees United Airlines fleet of Boeing 777s will need to be current in the 777, which means FAA must contract for simulator and aircraft time. "Another inspector could be responsible for overseeing several charter and on-demand operators and will need to be checked out in a *King Air*, Dassault *Falcon Jet*, or a Lear 35," Henry says. Then, there's Ray Stinchcomb, who is FAA's warbird expert and is currently rated on the B-25 and maintains currency in various tailwheel aircraft.

A big part of the job, Henry explains, is coordinating all the inspector and aircraft requirements. "We have great staff members who maintain the database of all the Flight Standards Service pilots and qualifications. Also, we've got volunteers from across Flight Standards who give checkrides, but the biggest challenge is making sure our inspectors are flying safe aircraft that give them the right experience to do their jobs, and do it safely."

I've been with FAA 20 years and every job I have had has been great.

The Flight Program is a certificated part 135 operator, which means it has a complete set of operations manuals and training manuals. It is overseen by the Fort Worth Flight Standards District Office.

What about Henry; is he current? "I'm so busy being a manager that I focus my time on making sure we have the people and the resources we need to keep our inspector workforce current."

Henry flies for fun, which is what you'd expect from someone who grew up on an airport. His father ran the Blackwell, Oklahoma, airport and Henry first flew on his father's lap in a Ryan STA. He soloed in 1964 on his 16th birthday. He now flies a Piper J-3 *Cub* or a Piper *Cherokee* whenever he can, but says what he does at work is just as fun. "I really enjoy working with the great people in our office and the great people across the FAA.

"In fact, I've been with FAA 20 years and every job I have had has been great."

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